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Editor, DEVELOPMENT DIGEST
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Gordon Donald, Editor; Pushpa Nand Schwartz, Associate Editor
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DEVELOPMENT
DIGEST

THE
FUTURE

OF THE
NATION

AND
THE
WORLD

BY
J. H. M. J. J.

1911

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TRANSPORTATION

THE PAN AMERICAN HIGHWAY IN GUATEMALA.
(PHOTO: PAN AMERICAN UNION)

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Transport and the Economic Integration of South America

Robert T. Brown

[Interest in the relationship of transport to the economic integration of South America has increased as a result of the formation of the Latin American Free Trade Association in 1961 and the growing belief that these nations must expand their exports to each other if they are to develop. Transportation policies must promote overall economic growth but should also contribute to developmental solutions for the backward or problem areas.]

The leaders of the Latin American republics are impatient with the slow course of the Latin American Free Trade Association (LAFTA), but the fact remains that there are severe geographical obstacles to economic integration. Whatever treaties and conventions are signed, they will remain mere pieces of paper unless the goods produced in one Latin American country can be placed in the marketplace of another at prices comparable to those of the same goods imported from Europe, the United States, and Japan. Without regular, frequent, and economical transport, there is no hope of overcoming the natural geographical barriers which have contributed to present limited trade patterns within the area.

A regional approach is used in this study of transport and economic integration because the nature of the transport problems can be better understood by looking at economic regions and the relationships among them than by focusing on separate countries. South America has been divided into nine regions [see figure 1].

Dr. Brown is with the Economic Commission for Latin America, Santiago, Chile.

Figure 1. REGIONS OF SOUTH AMERICA

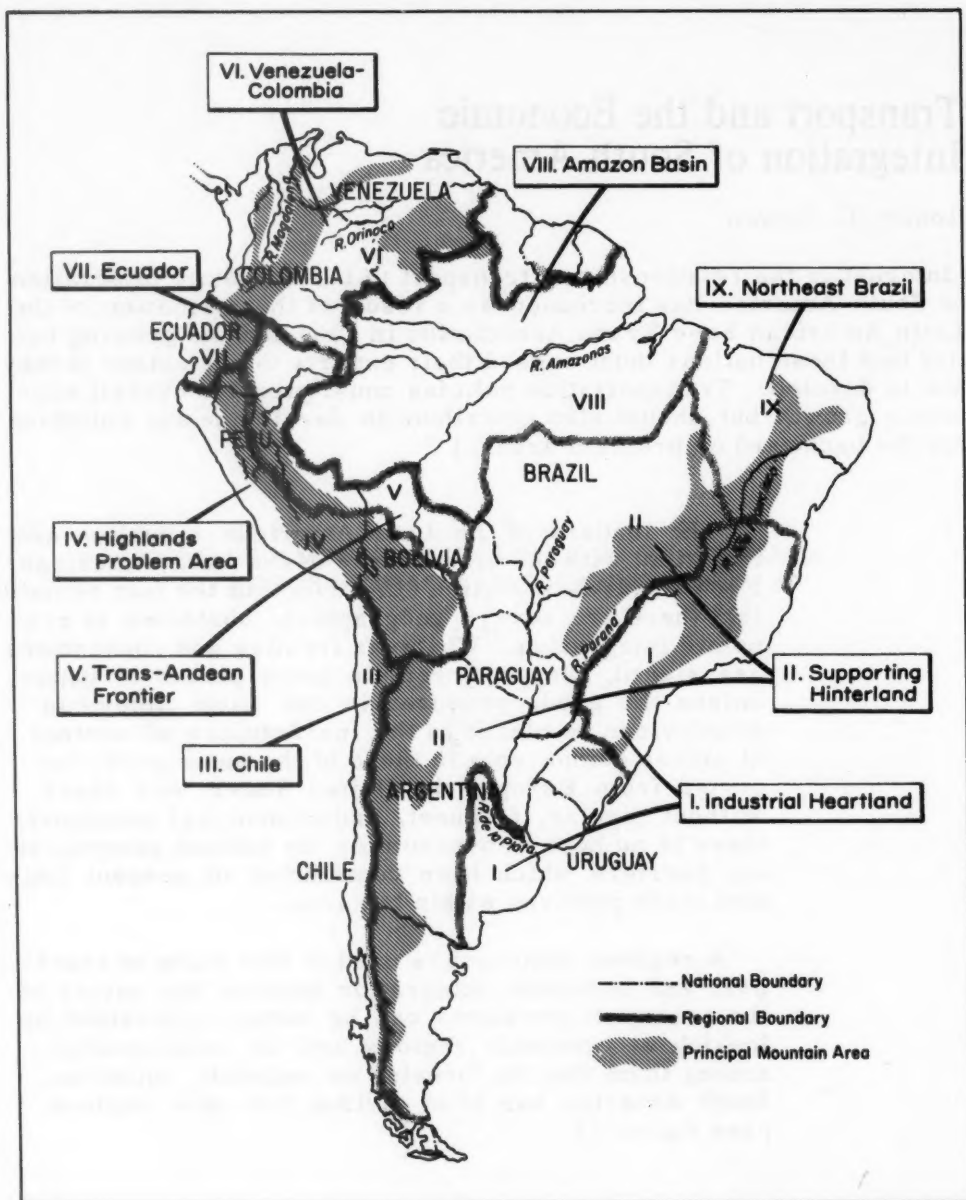


Figure 1: Regions of South America

Criteria used in defining regions: topography, population density, level of economic development, and the author's conception of a developed South America should integration be successful.

- Region I. The industrial heartland, a leading area now and in future. Corresponds to industrial triangle in U. S. from Boston to Washington to Chicago. Land transport well established but poorly integrated.
- Region II. Supporting hinterland to Region I. Extensive River Plate System could be further developed. Penetrated by some railways and roads but inadequately for future growth.
- Region III. Isolated by mountains, but includes land, climate and minerals for past and future development. Chile could play role like California in U. S.
- Region IV. Overpopulated problem area with dry coastal strip plus extremely mountainous terrain. Some rail and road connections despite difficulties.
- Region V. Sparsely populated area behind Andes Mountains which Peru and Bolivia want to settle. Some agricultural potential. Virtually unconnected except by Amazon River system.
- Region VI. With petroleum and agricultural resources and current developmental dynamism, it has similarities to Texas-Louisiana in U. S. Isolated from other regions, but developing internal connections despite mountains.
- Region VII. Ecuador fits with no other region. A few road and rail connections in fertile coastal plain and populated highlands.
- Region VIII. Dense Amazon rain forest is little developed and resources appear unpromising. Extensive river system, though sometimes difficult to navigate, offers cheap transport possibilities for long distances.
- Region IX. Low-income Northeast is poorly connected with rest of Brazil. Population pressing on limited agricultural resources; industrial growth just beginning.

Intra-South American Trade

One of the key elements for analysis in a study of transport and economic integration is the existing pattern of intra-South American trade. Several important conclusions can be drawn from the statistics. First, intra-South American trade essentially stagnated between 1948 and 1962. Although Venezuela's exports of petroleum products to the other South American nations increased dramatically, this increase was offset by reductions in the exports of other countries, most notably Brazil. Intra-South American trade in 1962 did not maintain the level it reached in 1954 and 1958.

Second, despite the importance of international trade in the economies of most of the South American republics, intra-South American trade is relatively unimportant. In 1962, the exports of the South American countries to one another, totaling \$524 million, represented only 7.5 percent of their total exports; imports from each other were 10.3 percent of total imports. For most countries these percentages are lower than in 1948 because total trade of South America with the world increased significantly between 1948 and 1962. Three of the ten nations, Venezuela, Argentina and Brazil, supplied 75 percent of the intra-South American exports.

Lack of access from one country to another (except by sea) is an important factor inhibiting the growth of trade. To define access, we may take each pair of countries in the region and ask: are there reasonably good highway, railway, or river connections between the two countries? Using these criteria, only 14 pairs of countries were classified as having relatively good access to each other and 31 pairs were classified as having poor access. Most of the former are in the southern half of the continent. Although Brazil adjoins all the countries of South America except Chile and Ecuador, only Argentina, Uruguay, and Paraguay were classified as having relatively good access to Brazil.

When commerce between countries with relatively good and relatively poor access was tabulated, it was clear that the importance of Venezuela's petroleum overwhelmed the role of access or geographical proximity in explaining the present pattern of intra-South American trade. Using export data for 1962 on intra-South American commerce excluding Venezuela, the pairs of nations with relatively good access account for \$254.2 million, 73 percent of the total, while the pairs with relatively poor access account for only \$94.5 million. Thus commerce tends to be more intense where access is easier, and it would seem probable that if access could be improved, through improving land or river transport, commerce would be likely to increase. This conclusion may appear obvious, but its applicability to South America is not evident a priori because of the present nearly complete dependence on ocean shipping in inter-country trade.

In terms of the regions defined above, it is clear that present trade (aside from petroleum) is heavily concentrated on commerce within and between Regions I and II, the industrial heartland and the supporting hinterland. Were information available on trade from province to province within Argentina and from state to state within Brazil, the importance to these two regions would stand out even more.

Resource-Oriented Development

Agricultural, mineral, and fuel exports represented more than 90 percent of the total exports of every South American country except Peru in 1959/60. In their exports to other South American countries the percentages are almost as large. Agricultural exports accounted for at least 80 percent of the total exports of Uruguay, Argentina, Ecuador, Brazil, and Colombia, while mineral and fuel exports represented at least that percentage of the exports of Chile, Bolivia, and Venezuela. Only Peru, whose large exports of fish meal are classified as manufactures, is a partial exception. It is interesting to note that while agriculture, forestry, and fishing contributed only 17 percent of the gross domestic product of Argentina in 1959/60, these sectors accounted for 95 percent of Argentina's exports.

Despite the attempts of these countries to diversify their exports, sales of raw materials will probably continue for the indefinite future to produce the great bulk of foreign exchange to finance their imports. These exports, then, will require efficient transport if they are to compete in world markets. At the same time it is important to recognize that the means of transport most appropriate for moving iron ore and wheat could well be inappropriate for trade in industrial products. The principal objective sought by the South American countries in greater economic integration is to increase trade in industrial products, so that considerable attention must be directed to the transport requirements of these goods. Port, railway, and highway investments are costly and long-lived: countries whose capital resources are limited must develop a balance between transport investments designed to facilitate raw material exports and those intended for the requirements of national and regional industrialization, so that the resulting transport structure is suitable for both purposes.

Population and Income

The future populations of the countries and the nine regions of South America can be examined using estimates made in 1963 by the United Nations. The variation in the rates of growth among countries and regions is remarkable. While Uruguay has a projected

rate of population increase of only 1.2 percent annually, the rate for Venezuela is 3.6 percent, one of the highest in the world. The spread between the highest and lowest rates of regional growth is smaller: 3.4 percent in Region V and 1.8 percent in Region IX. In general the rates are high, and Latin America's population is growing faster than that of any other major area in the world. But even though the South American countries will be hard put to provide productive employment for the expected increases in their populations, there should not be a general problem of excess population in relation to the resource base of the continent. There will nevertheless be serious problems in several specific regions should historical population tendencies continue.

The importance which both Peru and Bolivia have attached to encouraging migration out of the highlands region of their countries (Region IV) and into the unoccupied eastern areas (Regions II and V) is well founded. Should the population of Region IV reach the 22 million projected for 1980, there would be no hope of easing the already miserable lot of these people. Both Bolivia and Peru have colonization programs underway. Bolivia has paved the highway from Cochabamba to Santa Cruz to encourage people to move into Region II and to open a market in the highlands for sugar and rice which are grown there. Other Bolivian colonization projects have been begun further to the north in Region V. Despite the difficulties and high costs it is clear that Bolivia has no alternative to the policy being followed. However, it might well be that migration can also be encouraged toward the lowlands by closer links between the Bolivian part of Region II and Argentina and Brazil.

The alternatives open to Peru to ease the population pressure in Region IV are somewhat wider. Its coastal area is very fertile if it can be irrigated, so that Peru must decide to what extent resources should be dedicated to this objective and to what extent the pay-off would be higher in colonization to the east. Peru, furthermore, has a better potential than Bolivia for industrialization. Nevertheless, colonization to the east, with the transport investments which this program requires, should not be abandoned. It may be, however, that highways are not the best way to open remote areas when the distances are long between settled centers and the new colonies and there is no hope of developing the space in between. In these cases, air transport may offer a more economical alternative, supplemented by river shipping where possible.

Income disparities. There is wide disparity in the gross national product (GNP) per capita and the percentage of literacy among the South American countries. Venezuela had a per capita GNP in 1962 of \$693, but Bolivia had only \$116. Uruguay has attained a level of literacy of 88 percent, while in Bolivia the level is only 31 percent.

With such sharp disparities there are dangers to closer economic integration. The commanding lead of Argentina and Brazil in industrialization is a threat to the hopes of the smaller countries to reach the same goal because the nascent industries of these countries find it as difficult to compete with those in Brazil and Argentina as do these latter countries to compete with the United States and Europe. Despite the early promising start of the LAFTA, great difficulties were encountered in the tariff negotiations held in Bogotá in 1964. There, the solution to this problem proposed by the smaller nations was that efforts be made to further industrial complementation. Under this arrangement, several countries would share the various processes of a single industry. For such schemes to be successful, with different components of a single product produced in several countries and then brought together for assembly, it is essential that well-organized transport be available. The present structure of intra-South American transport is inadequate for this purpose.

Great diversity in levels of economic development also exists within most of the South American countries, and the danger is that closer international economic integration would strengthen centers that are already powerful while contributing little to overcoming the disparities. In Brazil, for example, the states of São Paulo and Guanabara in 1957 contained 23 percent of the population of the country but only 4 percent of the area, and produced 45 percent of total national income and 80 percent of the non-agricultural income. In Peru more than 90 percent of the industries established since 1960 have concentrated in the Lima-Callao area. Similar examples could be cited in the other countries.

Under dynamic growth, inequalities will develop as first one area and then another is better able to satisfy the demands of the rest of the economy. With a reasonable mobility of the factors of production, migration of both labor and capital will tend to reduce these inequalities. At the same time it must be recognized that often the advantage which one area enjoys is a result of historical accident and that this advantage tends to be cumulative. In these circumstances, it is even possible that excessive concentration of development in a few areas, in addition to creating social and political problems, may work to the detriment of economic development for the nation. This is clearly seen in countries where agriculture has largely been ignored, with stagnant and even decreasing incomes, so that a large proportion of the national population provides no effective demand for the industrial products that the country wishes to produce. In many instances it is desirable to adopt policies to stimulate the development of specific areas that have lagged. Among the policy tools available for this purpose are improvement of transport facilities and transport rate policies.

In 1950, more than 40 percent of the population of Argentina, Chile, Uruguay, and Venezuela lived in urban localities, defined as those with 2,000 or more inhabitants. By 1975, however, it is predicted that over 40 percent of the population will live in urban centers in all the South American countries. Urban population in 1975 should reach 84 percent in Uruguay, 74 percent in Chile, 73 percent in Venezuela, 71 percent in Argentina, and 51 percent in Peru. There might be little reason to be disturbed about urbanization except that the concentration in South America is commonly in a single large city, and the growth of that city does not reflect the productive employment of large numbers of industrial workers. South American countries are characterized by what has been called "hypercephalism," (literally—excessive size of the head, or of the chief city).

Whatever might be one's views on urbanization per se, it is important in planning transport investments and policies to consider explicitly the pattern of urbanization, that is, the size and relationship of the different urban centers desired. While people "cannot be kept down on the farm once they have seen Buenos Aires," they can be guided toward migrating to particular cities or regions other than the capital city through conscious governmental policies in the fields of housing, transport, taxation, etc., so as to reduce the tendency for already large urban centers to grow more rapidly than smaller urban localities.

Transport Modes

Ocean shipping. At the present time ocean and river transport is practically the sole means by which South America moves its exports and imports. Overall, 99.3 percent of its foreign trade was thus transported in 1962, and with two minor exceptions the percentages are over 96 for each country in both directions. Even the intra-South American trade was probably moved 95 percent by water. In these totals, river transport is a minor part.

It is clear from the geographical facts that ocean shipping must continue for many decades to come to provide the only low cost transport for low- and medium-value cargo between many pairs of regions. It must play the role that transcontinental railroads played in U. S. history 100 years ago. For this task, it has many present disadvantages which must be overcome. However, the initial capital cost of ports is far less than that required for railroads or highways, and the vessels themselves can be left in foreign hands or chartered until sufficient traffic develops to warrant ship purchases or construction.

Because of the present dependence on maritime transport for intra-Latin American trade, the LAFTA secretariat has focused

practically all its attention to transport on this mode. Maritime transport among a number of regions is deficient, and the LAFTA effort will not be successful unless it can be improved. Action taken by LAFTA in this area has been guided largely by the Latin American shipping companies, both state and private, and has been overly concerned with protecting LAFTA shipping from outside competition. Insufficient attention has been given to the basic problem of providing regular, frequent, and economical liner service.

Inefficient ports and undisciplined port workers are the single most important obstacle in this transport sector to economic integration. Shipping companies can provide regular liner service on fixed schedules only if they are assured of prompt reception in ports of call and efficient handling of their cargo. Freight rates within the LAFTA area can be maintained at a reasonable level only if port workers charge realistic rates for the work they do, and if ships are not forced to remain in port for long periods by the low productivity of port workers. Port costs appear to differ sharply from country to country and among ports within the same country. Freight rates should reflect the costs in the specific ports served; producers and consumers within the zone of a high-cost port should be forced to pay higher rates. Only in this way can community pressures be brought to bear to reverse the dangerous trend toward ever higher port costs.

Specialized shipping, e. g., oil tankers or ships wholly loaded with grain, is not a major problem area. But direct intergovernmental action is necessary to establish regular liner service for general cargoes among the LAFTA countries in those regions where it is presently deficient. The two basic alternatives are: 1) direct subsidies to liners to assure regular service on low-volume routes, and 2) reserving (assigning) cargoes, in order to channel the existing traffic to favored carriers. Several of the subsidized state shipping companies already provide service within the LAFTA area. Providing subsidies on a multinational basis, however, would create a number of problems and the shipping companies themselves have not recommended this alternative. Despite the theoretical advantages of subsidies, LAFTA members at present favor the alternative of cargo reserves.

Applied intelligently, cargo reserves could improve maritime service. Although the LAFTA members will not find it economically desirable to reserve all intra-LAFTA cargo for ships registered in LAFTA countries, they should assert their right to control collectively the routing of this cargo. It is to be expected that the United States and the European shipping conferences will consider retaliatory action should cargo reserves be implemented. However, economic analysis and continued negotiation would, it is hoped, permit an acceptable agreement to be reached.

Railroads. Railway construction in South America began around 1850 and was essentially completed by 1930. (In the United States, railroad mileage has decreased since 1920.) Except in Colombia and Bolivia, railroad construction since 1930 has not represented important percentage additions to the previous railway systems, although construction in both Argentina and Brazil since that time has been significant in absolute terms. Probably only in Venezuela does there exist a real possibility for development of a wholly new railroad system.

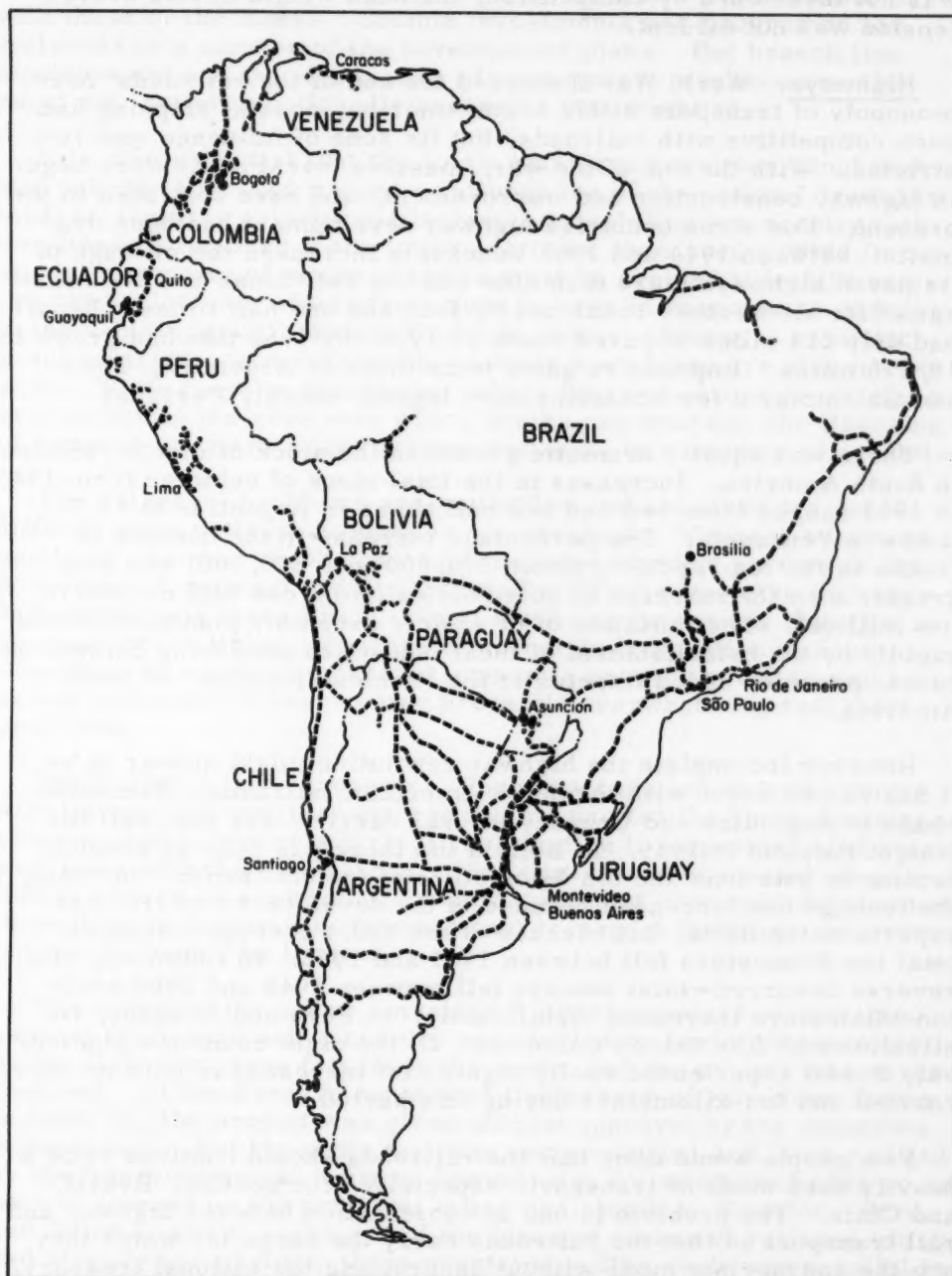
In the construction of railroads in South America, largely with British or French capital, each railroad represented an independent business venture, and they were built to the tastes and standards of their foreign owners. Considerable diversity of gauges was inevitable. Although by 1927 the one-meter gauge accounted for slightly more than one half of total South American railroad mileage, the other half was made up of eight different gauges. Railroads were built for narrow and specific purposes instead of forming part of an integrated railway system. This problem was compounded by difficult topography. The greatest obstacle is, of course, the Andes mountains, which make railway construction in Colombia, Ecuador, Peru, and Bolivia an engineering nightmare. Six railways have peak altitudes of 10,000-16,000 feet, compared to the peaks of 5,000 and 8,000 feet in the western United States.

However well the railroad structure of South America may have served that continent's transport requirements before World War I, it is not adequate today. President Frondizi's description of the problem in Argentina several years ago could well be generalized to other South American countries:

The Argentine railway system was laid out for another Argentina, for the Argentina whose foreign trade was limited to the export of meat, hides, wool and grain and to the import of machinery, fuel and manufactured products. That country no longer exists. Now there are manufacturing centers throughout all the interior, oil wells in the north and south, iron ore and coal and other mines distributed throughout the entire country. The railroad must connect these centers adequately and rapidly, without the necessity of transshipment in Buenos Aires.

The economic problems with which South American railways are faced today are similar to those throughout the world. The tremendous advantage of railroad transport in South America over alternative media was obvious until World War II and led to the extension of branch lines to areas where the density of traffic was low and to a proliferation of stations every few miles along the lines. The traffic generated on many branches and by many stations was inadequate

Figure 2. MAJOR RAILWAYS IN SOUTH AMERICA



to cover the costs they occasioned, but they were subsidized by lines where traffic was greater. So long as the railroad monopoly was not threatened by competition, the dead weight of this overextension was not evident.

Highways. World War II marked the end of the railroads' near monopoly of transport within South America; coastal shipping had been competitive with railroads, but its zone of influence was restricted. With the end of the war, massive investments were begun in highway construction and improvement, and have continued to the present. For some countries highway development has been dramatic: between 1944 and 1962 Venezuela increased the mileage of its paved highways more than nine and one half times and the mileage of its all-weather roads nearly four and one half times. Brazil had only 214 miles of paved roads in 1938; by 1962 this had grown to 10,216 miles. Impressive gains were made in Argentina, Chile, and Colombia; a few countries have lagged, notably Paraguay.

There was equally dramatic growth in the stock of motor vehicles in South America. Increases in the total stock of vehicles from 1945 to 1963 ranged from two and one half times in Argentina to 13.7 times in Venezuela. The percentage increase in the number of trucks in the ten republics (from 310,000 to 1,500,000) was even greater than the increase in automobiles (from one half million to two million). The initiation of vehicle assembly plants, followed rapidly by the establishment of local industries producing component parts, provided added impetus to the "vehicularization" of South America.

However incomplete the highway revolution might appear to be, it has raised havoc with the South American railroads. The railroads in Argentina and Uruguay in 1963 carried less than half the freight they did in 1945. In Bolivia too there has been an absolute decline in both tons and ton-kilometers of freight traffic. In Chile, the tonnage has increased because of the development of iron ore exports in the north, but because of the short average distances, total ton-kilometers fell between 1945 and 1962. In Colombia, the reverse occurred—total tonnage fell between 1945 and 1963 while ton-kilometers increased significantly; in Peru and Ecuador, the situation was like that in Colombia. Of the eight countries studied, only Brazil experienced really significant increases in both tonnage carried and ton-kilometers during this period.

Few people would deny that the railroads should continue to be a heavily used mode of transport, especially in Argentina, Brazil, and Chile. The problem is one of coordination between highway and rail transport so that the railroads carry the cargo for which they are the appropriate mode without bankrupting the national treasury.

National planning is being given increased importance, so transport requirements can be predicted with greater precision and investment decisions regarding one transport mode are made simultaneously with those of the others. Sizable investments are programmed for railroads in a number of the development plans. But branch line abandonment and the elimination of unnecessary workers are also required, however politically unpopular this might be.

It is also essential that the South American countries adopt highway policies that tend toward a rational use of the nations' transport modes. Greater priority for highways paralleling low density railway lines is required if the latter are to be abandoned. Wide fluctuations in imports of motor vehicles must be avoided if freight rates are not to fluctuate widely from year to year in response to changes in the vehicle stock. Weight limits to protect highways, realistic gasoline prices, and reasonable highway user taxes are also necessary. While there is little to be said in favor of setting truck rates or restricting the area over which trucks can operate, the licensing of common carriers might well be desirable in a number of countries.

The railways' problems are multiplied and solutions are more difficult when national economies are stagnant. Workers can more easily be removed if job opportunities exist in other sectors of the economy. A rational redistribution of traffic between the highways and railways is more likely if total traffic is increasing than if it is constant or declining. Successful economic integration in South America, by promoting general economic growth, could do much to assist indirectly in overcoming presently overwhelming transport problems.

International land transport. The preoccupation of each country with its own internal transport problems has led the South American governments to pay relatively little attention to improving land transport links with their neighbors. Now that closer economic integration is viewed as a potential dynamic source of economic development throughout the continent, international transport facilities and service can no longer be ignored.

The proposal for a Pan American Railway received encouraging support more than half a century ago, including funds appropriated by the U. S. Congress to survey the route, but the project was never realized. At the First International Conference of American States in 1889/90, the project was given official approval by the countries represented. But the route that was recommended and later ratified by the Intercontinental Railway Commission followed the Andes so as both to connect up the principal cities of Colombia, Ecuador, Peru, and Bolivia, and to make use of the bits and pieces of railroad which had already been built in these countries. This route ran parallel to

and duplicated the ocean shipping routes, and in addition would have entailed incredibly high construction and operating costs. The alternative locations to the east of the Andes were equally impossible, as here the land was unpopulated and was either mountainous and forested or unhealthy jungle. It is not surprising that capital could not be found to embark on such a venture.

In the southern part of the continent, however, railroad construction pushed ahead rapidly and international railways became a reality. The Transandean line from Buenos Aires to Valparaiso, Chile, was completed in 1910. The railroad, however, was never given much use, despite the great expectations when it was built. On the eastern side of the continent, real efforts were made for about ten years before the outbreak of World War I to establish a truly integrated international railroad system that would link Brazil, Uruguay, Paraguay, Bolivia, Argentina, and Chile; some new links were established. With the outbreak of the war, however, new European capital was no longer obtainable and the attempt collapsed. Never again was a serious and concerted effort made to use the transport potential that existed in the many disconnected railways in that part of the world.

As enthusiasm for the Pan American Railway diminished, its logical successor was the Pan American Highway. In 1923, at the Fifth International Conference of American States in Santiago, the Pan American Highway received official international approval. A convention on automotive traffic was ratified by nearly all the American republics in 1930. The Ninth Pan American Highway Congress met in Washington in 1963, continuing the work begun nearly four decades earlier.

During the 1920s the Pan American Highway was imagined as a single route uniting the American republics. However, persons more knowledgeable about South America had conceived of the Pan American Highway as a system of highways rather than as a single route. When the routes proposed by Anesi in 1938 are compared with the Pan American system now accepted as official, shown in Figure 3, it is clear that few changes in the conception have occurred in the last quarter of a century. The progress made in paved and all-weather roads is great. Within a few years the entire system within South America should either be paved or at least all-weather. The costly investments carried out have been financed nearly entirely by the countries concerned with little foreign assistance; the United States has spent more than \$135 million on that section which passes through Central America but it has contributed little to financing the Pan American Highway system in Mexico or South America.

Important segments of the route are heavily used today within the separate countries by trucks and buses, but there is remarkably little traffic across national boundaries, apparently bearing out the

Figure 3. PAN AMERICAN HIGHWAY SYSTEM



original belief of the South Americans that the principal users of the system would be private automobiles. This situation will change, however, if South America is successful in bringing about closer economic integration, especially in the production of industrial products. For this to be possible, sizable investments in highway construction and paving will be necessary to permit large trailer trucks to operate economically. Just as important, however, is the elimination of administrative obstacles that plague international highway transport at present. Frequently, trucks from one country are not even permitted to enter a neighboring nation and costly transshipment is required at the frontier. Surely nothing can be so irrational as to invest million of dollars in highways and then to build bureaucratic roadblocks that make it impossible to use them.

River transport. In several areas of South America, river transport is already of considerable importance and, if it were properly coordinated with ocean, highway, railroad, and air transport, could contribute greatly to economic integration. The River Plate and Amazon River systems are among the largest river systems of the world, but despite their potential, they have been ignored as an area where moderate investments could have a high rate of return. While funds can be found to study the feasibility of a highway along the eastern slope of the Andes from Venezuela to Bolivia, a project whose payoff would be realized only in the far future, river transport, with a few significant exceptions (as in Venezuela) remains untouched.

The River Plate system, composed of the River Plate itself, and the Paraná, Paraguay, Upper Paraná, and Uruguay Rivers, in addition to other navigable tributaries, could well become the cornerstone for efficient transport between the Argentine part of the industrial heartland and large parts of the supporting hinterland lying in Argentina, Paraguay, Uruguay, Bolivia, and Brazil. Within Argentina there are more than 2,000 miles of navigable rivers which form part of this system and in Paraguay more than 1,300 miles. Over just one route of this system, mineral ores are transported nearly 2,000 miles from the border of Bolivia down through Paraguay to a port in Uruguay for transshipment abroad. In view of the enormous impact which efficient river transport between Regions I and II could have on economic integration and development, it is shameful that improvements in the waterways have been so long delayed, due in no small measure to narrow political considerations.

Despite great difficulties, the tributaries of the Amazon can be used effectively to develop the eastern portions of Peru and Bolivia. Ships of 2,000 gross registered tons reach Iquitos in Peru after a voyage of 2,000 miles up the Amazon from the Atlantic Ocean. Within Bolivia, it has been estimated that there are more than 6,300 miles of navigable rivers, many of which form part of the Amazon system. The enormous cost of building highways in eastern

Peru and Bolivia and in western Brazil, in addition to the low population densities, indicates that serious consideration should be given to the possibilities of a transport system based on a combination of river, air, and highway transport, where the natural advantages of each are used in the development of an adequate and efficient network.

Air transport. For much international passenger traffic within South America air transport is clearly the most appropriate mode. Even though bus and private automobile transport will become increasingly important between adjoining countries, only air transport can provide the rapid passenger service among the capitals and larger cities that is indispensable for successful economic integration. The difficult topography, long distances between urban centers, and lack of developed surface transport media have already encouraged the development of air transport in many of these countries.

Between 1951 and 1963 the passenger-kilometers performed by South American airlines (in billions) increased as follows: on domestic routes 1.8 to 4.3; international 0.4 to 2.0. The predominance of Brazil in domestic operations is evident: in 1951, Brazil accounted for 59 percent of the passenger-kilometers performed in domestic operations by all the South American countries, and it still represented 53 percent in 1963. Considerable variation exists among countries in the passenger-kilometers performed in domestic and international operations. In Chile, Brazil and Colombia domestic service is by far the most important, while in Argentina and Uruguay international operations are now more important.

Air freight transport has also increased in South America, though at a slower rate than domestic air passenger transport. Air freight traffic in South America is considerably more important than the average for the entire world: in 1963, freight traffic on the average throughout the world represented 19 percent of scheduled air traffic, whereas all the South American countries except Argentina and Uruguay exceeded this percentage and in Venezuela air freight represented 45 percent of the total. Despite the relatively well developed cargo services, however, there is still little traffic from one South American country to another.

Air transport should not be considered a panacea for the transport problems of Latin American integration. It suffers from the same fundamental defect which affects maritime transport; it contributes solely to the development of the area within the radius of attraction of the airport. Because of the overwhelming incidence of terminal costs in ocean transport, there is always an important stimulus operating to reduce the number of port calls and to concentrate cargo in as few ports as possible. In air transport, the analogous factor is the cost of raising the airplane off the ground. Only if distances are long between airports and the full capacity of large aircraft can

be used, is air transport economical. For this reason, dependence on air transport would tend to perpetuate the present pattern of population and industrial production concentrated into a few "hypercephalic" urban centers. A trunk railroad or highway is likely to produce a "ribbon" development of towns along its entire route and to encourage the development of contiguous feeder lines. The stops on trunk airlines, on the other hand, are usually 500 or more miles apart and the vast intermediate stretches remain as isolated as they were before.

A Transport Policy for Economic Integration

Regional analysis makes possible a general assessment of priority needs. For internal trade within each of the nine regions, highway transport has a clear priority in four regions: III, IV, VII and IX. It has equal priority with railways in Regions I and VI, and an equal priority with river transport in Region V; in Region II all three are of major importance. In Region VIII, the Amazon basin, river transport has a clear priority. These priority choices, with overall emphasis on highways, can provide the ease and flexibility of goods and passenger movement at an economic cost which is required to spread development spatially within each country, while at the same time bringing these countries together. The completion of the Pan American Highway system in particular is a prerequisite for producers to discover new markets in adjoining countries and for consumers to learn of new sources of supply.

Of the 36 pairs of interregional combinations, ocean transport alone or in combination with river transport is the only feasible transport mode in 20 cases. In six other cases, ocean transport will continue to be important. The permanent role assigned ocean transport, despite the many disadvantages which this implies, is a clear indication of the geographic difficulties confronting economic integration in South America. For this transport mode to perform its history-making role, it is essential to establish two new organizations: shipping conferences for intra-LAFTA ocean commerce, and an international LAFTA regulatory body. Both agencies are necessary for the development of liner services and for the adoption of freight rates in accord with the objectives of LAFTA.

River transport offers exceptional opportunities for justifiable investments conducive to integration, and it also appears to be an area where technical and economic assistance from the United States could make a significant contribution without incurring opposition from U.S. private interests (as in ocean shipping). This assistance could be directed toward improving channels, installing navigational aids, selecting appropriate river vessels, etc. The United States could also assist in the planning and execution of more ambitious

international multipurpose river projects for electric power, flood control, and improved transport.

In the northern part of the continent, among Regions VI, VII, and VIII, and between these and the southern regions, transport will continue to develop basically along the lines of the past with primary dependence on ocean transport and, in the case of the Amazon basin, river transport. While it is possible and desirable to improve highway transport between Ecuador and Colombia and between Colombia and Venezuela, especially to stimulate the development of frontier areas, it is difficult to discern instances where a major change in transport could radically alter the development that is already taking place.

Region IV, the highland and coastal areas of Peru and Bolivia, will continue to be linked with the rest of the continent almost exclusively by ocean transport. Although highway transport between this region and Region V, the eastern slope of the Andes, will become increasingly important, and although Bolivia may be able to increase its trade somewhat with Chile using present railroad connections, the natural isolation of this region can be reduced only slightly.

Region IX, the northeast of Brazil, should improve its land transport connections with the rest of Brazil, but its links with the other South American countries will have to be by water. Region V is at present accessible by highway from Region IV, by railroad and river from Regions I and II, and by river from Region VIII. A proposal is under study by the Inter-American Development Bank to construct a highway parallel to the Andes through the entire region, but the type of transport investment required to connect Region V with other regions is still in doubt.

For the transport planner, the most interesting transport problems are found in the southern zone of South America, encompassing Regions I, II, and III, where the transport alternatives are wider. The development of river, highway, and railroad transport among these three regions to reduce the present dependence on ocean transport can contribute enormously to economic integration and can also aid in spreading economic development geographically over a much wider area.

[Condensed from Transport and the Economic Integration of South America. Washington (D. C.): The Brookings Institution, Transport Research Program, 1966, pp. 1-228. © 1966 by The Brookings Institution.]

Transport and Agriculture in India

Wilfred Owen

[The isolation of Indian farmers is one of the principal obstacles to agricultural productivity. Roads make it possible for fertilizer to be delivered, for crops to reach the markets and for new ideas to penetrate the villages. Road building should be focused where it will contribute most to farm output.]

Preoccupation with intercity transport during the first three Five Year Plans has left local rural transport in extremely poor condition. Eighty percent of India's population lives in 570,000 rural villages. The majority of these people have no contact with the outside world; "We never see a stranger," they say. They also seldom see the literacy worker, the agricultural extension agent, or the veterinarian. The villagers move on foot over tracks scored by animals, where the going is rough even for the bullocks.

In the current Five Year Plan period Indian agriculture is not only called upon to rebound from the food deficit levels of the mid-sixties, but to feed the 60 million more people that will swell the population by 1973, and to improve the diet of millions who are now underfed. The target for production of food grains by the end of the Fourth Plan is about 120 million tons per year. This means 48 million more tons annually than in the great drought of 1965/66. Targets for cotton and jute will be nearly double the volumes produced up to then.

The impact of this expanded tonnage on transportation will be intensified by two factors. First, the continuing growth of population in urban industrial

Mr. Owen is a Senior Fellow at the Brookings Institution, Washington, D. C.

areas will require moving greater amounts of food long distances to the cities. Second, intensive agriculture will necessitate the movement of a greater volume and variety of products from the urban industrial sector to the farm. In the past, food output could be raised by expanding the area under cultivation with relatively few inputs from the outside. But if agriculture is to meet the new targets set for it, the transportation burden will be much heavier.

Although many factors contribute to agricultural advances, the use of commercial fertilizer is probably the factor most responsible. Obviously the effectiveness of plant nutrients can be realized only if it is possible to make deliveries on time. For this purpose roads and vehicles have to be provided, along with a network of distribution centers within easy reach of the farmer. Other inputs requiring prompt delivery include pesticides, weed killers and rodent control materials. By 1970/71 the area to be treated with plant protection materials is expected to quadruple, requiring a 167 percent increase in these materials. Total seed delivery will reach a level of 1.3 million tons per year during the Fourth Plan period, and the supply of power-operated and manual equipment for plant protection and irrigation will rise by one third of a million units to a total of 1.3 million.

The Rural Transport System

India's Fourth Plan targets for agricultural production are ambitious indeed when measured against the shortcomings of rural transport. It is estimated that 85 percent of the roads linking villages to the nearest surfaced highway are mere foot tracks unsuitable for vehicle movement. Of the 241,000 miles of village roads and 140,000 miles of district roads, few have any surfacing at all. When the Third Plan got under way, one out of three of India's half a million villages was still more than five miles from a dependable road connection, and 17 percent were more than ten miles distant. Very few Indian farmers more than a mile or a mile and a half from a reasonably good road are using modern methods, so that under present conditions transport may limit the possibility of improving the farmer's efficiency to about one fourth of the total farm population.

Wheeled traffic in rural India is principally the bicycle and the bullock cart. An estimated 12 million bullock carts are in operation, the majority used exclusively for agricultural operations. They carry manure, seeds, and seedlings to the fields, and harvested produce to storehouses or to the weekly markets in the towns connected by good roads. Average ton-mile costs by bullock cart may be as high as 20 to 40 cents, while service is no better than 3 miles per hour. Where there is a motorable road and sufficient volume to make use of a truck, it is possible to reduce costs very sharply.

Table 1: Percentage Distribution of Villages
by Distance from an All-Weather Road

Distance	Percentage of villages
Within village	10.9
Up to 1.5 miles	18.2
Between 1.5 and 3.5 miles	20.7
Between 3.5 and 5.5 miles	12.3
Between 5.5 and 10.5 miles	15.9
Between 10.5 and 20 miles	9.6
More than 20 miles	7.8
Information not available	4.6
Total	100.0

Source: Survey in 1959 by the Ministry of Community Development, Government of India.

For example, when 150 maunds (12,300 lbs.) of groundnuts are marketed 50 miles away, the cost is only 8 cents per ton-mile. The role of the bullock cart has declined; it was once common to carry freight up to 50 miles by bullock, but now 25 miles is generally the limit.

The Impact of Transport

What happens when rural transport is improved has been demonstrated by the village of Wazirpur in Gargaon District, Haryana, where a 12-foot tarred road has brought about significant changes. Prior to completion of the road, it was possible for the village to obtain cash from the outside only twice a year at the harvest. Now cash is entering the village daily through the sale of vegetables. Vegetables also provide substantially larger returns per acre. The new road has also added to village income by increasing the volume of milk sold to neighboring towns. When it is possible for delivery of fertilizer to be made over a hard-surfaced road delivery charges are reduced, and farmers find it easier to pick up supplies in their own carts. It is also less likely that fertilizer deliveries will be late.

The villagers also reported that it is now possible to conduct high-school classes because teachers are able to ride bicycles from the nearest town. The state picks up all school children free of charge on the state-operated bus network, thus increasing attendance. Completion of the road to Wazirpur has also made it possible to establish a dispensary, and to have both doctors and veterinarians available when needed. House construction has been aided by good

roads because the cost of transporting bricks and other materials by truck is one tenth the cost by camel. This kind of change is duplicated in many parts of India.

Linking Transport to Intensive Agriculture

In agriculturally advanced Western countries, the number of miles of farm-to-market roads per square mile of cultivated land varies between 3 to 1 and 4 to 1. The lower ratio is found mainly in grain-producing areas where fields are large; the ratio rises where farms are smaller and the topography difficult. In Britain, France, Japan, and the United States, the ratio is around 4 to 1. In Taiwan and Denmark it is closer to 3 to 1. In Malaya it is about 3/4 to 1, and in the Philippines around 1 to 1. In India the ratio is only about 2/3 of a mile of road to 1 square mile of cultivated land. The statistics indicate a certain minimum density of farm-to-market roads where rural development has achieved high levels, and few of the poor countries have nearly enough mileage.

In the past, the objective of India's road-building effort has been to bring every village in a developed agricultural area within 4 miles of a surfaced road and 1.5 miles of some road by 1981. Other villages were to be brought within 8 to 12 miles of a surfaced road, or 3 to 5 miles of an unsurfaced road. One weakness of this program has been the absence of economic criteria; that is, the lack of any relation to the goal of increasing agricultural output.

Current efforts at intensive cultivation offer a new opportunity to focus local road improvements on the goal of achieving higher agricultural yields. The initial effort of this kind was the Intensive Agricultural District Program (IADP), undertaken to concentrate needed agricultural inputs in certain areas having good soil and other conditions favorable to production. As could be expected, the areas where intensive efforts have been actually undertaken were those in which transport was already good enough to permit the inputs to be moved and the output to be marketed.

The approach initiated by the IADP was later extended to 160 Intensive Agricultural Areas (IAA) throughout the country, covering 20 to 25 percent of all cultivated land. It is in these agricultural areas marked for special treatment that transport investments should be concentrated if they are to contribute most to the development effort. Improved transport is likely to have disappointing results without the other conditions that need to be present to activate economic growth. Where farmers are willing to participate in the intensive programs, i. e., where a "prior dynamism" is present, and where the needed soil and water are available, transport can act as the catalyst for improved agriculture.

Among the cost ingredients of an intensive agricultural effort, the outlay required to build a satisfactory access road is a relatively small part of the total. Using average figures based on IADP experience: even if the road is to be paid for entirely during the first year, road cost per acre affected by it, assuming this to be a depth of one mile on both sides of the road, is less than 10 percent of total costs for the intensive cultivation program.

Financing a Breakthrough

As a rough estimate of requirements in the IAA areas: some 84,000 miles of new roads are needed, 42,000 miles of dirt roads need to be surfaced, and 42,000 miles need improvements but not surfacing. This could cost three quarters of a billion dollars. Additional funds will obviously have to be made available if the road program is to be on an effective scale.

Road users already carry a heavy tax load. These taxes now contribute two to four times as much to general revenues as the central government is spending on roads. This fact—plus the potential benefits from improved roads—suggests a larger allocation of existing user revenues to road purposes, rather than imposition of additional taxes.

Crediting India's Central Road Fund with more of the existing revenues from road user taxes is the place to start. This fund is financed by a small tax levied on the sale of gasoline. But most trucks and buses in India are diesels, and the tax on diesel fuel is not credited to the Road Fund. The many other taxes on motor vehicles and their operation now going to the general fund could also be credited, at least in part, to the central road-building fund. Localized levies on road beneficiaries could be added.

There is obvious equity in attempting to exact from the users of public services the cost of the public works built for their special benefit. This is the way the railways are financed, and to an increasing degree ports and airports. Relying on the general taxpayer to foot the bill has its drawbacks when there are so many public needs that cannot be priced and that must compete for general tax revenues. Highway development requires long-term planning and programing, and road administrators can benefit from a long-term indication of the revenues that can be committed in advance.

[Excerpted from Distance and Development: Transport and Communications in India. Washington (D. C.): The Brookings Institution, Transport Research Program, 1968, pp. 48-66 and 131-133. © 1968 by The Brookings Institution.]

Vehicle Design for Southeast Asia

Anthony Rieli

[Many parts of rural Southeast Asia lack good roads or roads per se. One possible solution to the transport problem in this area is to design a low-cost automotive vehicle that can operate in difficult or underdeveloped physical terrain. An American firm recently designed a vehicle—"KID"—and tested it in Thailand.]

Automotive design in the United States traditionally has concerned itself with component improvement, body styling and more efficient power trains. Little effort has been applied toward improvement of vehicular traction and off-road mobility, primarily because the system of roads in the United States has demoted their relative importance. In addition, most farmland in the United States is easily ploughed, planted and harvested by equipment requiring only a small jump in tractive effort over on-road vehicles; hence little effort has been directed toward developing off-road, all-purpose utility vehicles that can overcome the more severe environmental handicaps of less developed countries.

Today in Southeast Asia, thousands of rural villages and remote farmlands are denied medical and food supplies during the monsoon season. In addition, government programs aimed at improving agricultural, living and educational standards of rural areas may be idled for months at a time due to flooded roads or no roads at all. If the developing nations are to promote agricultural and economic productivity at a pace commensurate with their

Mr. Rieli was the design and development engineering manager for the KID project of the LTV Aerospace Corporation, Tyler, Texas.

population increases, then equipment specifically designed to cope with this problem must be developed.

Environmental Factors

Most roads of Southeast Asia are constructed from clay or sandy clay materials having very poor compaction. During the rainy season, all roads are covered with water which, interacting with the poor compaction, frequently makes them unusable for existing vehicles. Severe washouts are common. In general, the road surfaces are very rough, corrugated, and dotted with potholes large enough to immobilize conventional vehicles. With or without roads, the ability of vehicles to move over soft soil is unquestionably the most significant factor for consideration in the design of a vehicular system for Southeast Asia. The soft soil terrain varies from farmers' clay or road mud to the mucky, bottomless mud flats of the delta regions.

The cross-country terrain in Southeast Asia includes a broad spectrum of obstacles, some large enough to immobilize a vehicle. Typical obstacles are: boulders 1-6 feet in diameter at a mean spacing of 100 feet; major and minor bunds varying from 4 inches to 3 feet in height and sloping from 30 percent to nearly vertical; mounds 1-5 feet in height with slopes from 30 percent to nearly vertical; crevices and ravines 1-6 feet deep; and stream channels with and without water. The vegetation varies from grass fields interspersed with occasional shrubs to dense jungle growth basically comprising closely spaced, unyielding trees. To be effective, a vehicle must be able to pass through densely vegetated areas rather than circumvent them. This includes traveling through forest regions in which trees are spaced approximately 6 feet apart, and virtually impenetrable jungle areas accessible only by narrow trails.

The water barriers vary from practically motionless irrigation canals approximately 6 feet wide to turbulent streams or channels. Irrigation canals vary in depth from several inches to 5 feet depending on the season. During the rainy season, streams pose a very serious problem to vehicle mobility: placid shallow streams become formidable 100-200 foot-wide barriers flowing as fast as 7 mph with depths up to 15 feet. Compounding the problem, the banks are often steep and densely vegetated.

Design Parameters

To be successful, a vehicle must:

1. Be capable of operating anywhere, including muck, water, jungle trails, broken or irregular terrain, and prepared roads;
2. Withstand severe shock loads without failure;

3. Be capable of transporting relatively large loads within a small enough envelope to negotiate narrow trails;
4. Afford sufficient mobility and maneuverability without compromising simplicity;
5. Be highly reliable;
6. Require minimal maintenance;
7. Offer maximum utility and versatility;
8. Be producible at an extremely low cost.

The ideal vehicle must be able to fulfill many different requirements: to serve as a plough, utility truck, personnel carrier and mobile power source, and in numerous other roles. Because the anticipated operations will be in remote, undeveloped areas, ease of maintenance is a prime consideration. Maintenance tasks must be simplified so that most repairs can be performed in the field by relatively inexperienced people, with removal and replacement of major components accomplished at village-centered repair stations.

The design should allow rapid transition from prototype to production vehicles so that equipment can become operational within the shortest possible time. The cost must be minimized to make it economically feasible for users to buy the equipment. The costs also must be sufficiently low to allow a service plan that provides for central warehousing and stocking at repair stations of parts and equipment most in demand.

Engineering Approach

The approach followed by LTV Aerospace Corporation in designing such a vehicle circumvented much of the time-consuming engineering effort ordinarily required in the conventional approach. We relied heavily upon prior experience and sound engineering judgment to establish a basic configuration first, and then proceeded directly to test hardware for evaluation of concept feasibility. Almost total reliance was placed on utilizing off-the-shelf components.

Concentrated shake-down and engineering tests under local terrain conditions closely approximating actual operating conditions were conducted to reveal deficiencies in concept approach, design integrity, and manufacturing techniques. This enabled rapid modifications and evaluation to be made prior to demonstrations. On the basis of engineering data and experience obtained from testing, and constructive criticism solicited from impartial observers, a finalized prototype design was prepared. Extensive performance and mobility analyses were conducted to establish the vehicle configuration and systems design firmly. Computer programs were used to investigate power train, drive train, and suspension systems thoroughly.

Vehicle Tested

The vehicle, named the "KID", is an eight-wheel drive, 1/2 ton carrier. A single lever control located on the right hand side of the vehicle provides steering, speed, and braking control. Sufficient reserve tractive effort was provided to assure mobility over 60 percent grades, which is a good indicator of the vehicle's obstacle crossing ability.

The body hull is a completely enclosed, unitized structure that affords total running gear protection against the elements. It consists of steel, welded upper and lower body sections that are completely watertight to facilitate swimming in inland waterways. A hinged engine access cover is provided for normal maintenance and inspection. The upper body is easily removed to expose the entire power train for more extensive maintenance. The wheel spacing chosen virtually eliminates the hang-up normally caused by an inadequate breakover angle. The wide tread, combined with the low center of gravity, provides extremely good stability on side slope obstacles.

The power train consists of a 30 hp, air-cooled engine coupled to dual hydrostatic transmissions driven through a gear box. The hydrostatic units are individually self-contained, that is, each unit contains its own pump and motor. During operation, the engine is set at a constant speed (2,400 rpm), which by virtue of the gear box, is an optimum marriage with the hydrostatic transmissions. Vehicle speed and torque changes are governed by oil flow and pressure.

The turning radius can be varied from an infinite selection by the single lever control. Hence, the operator can execute any desired turn from a gradual turn to a sharp pivoting maneuver about the vehicle's centerline. Vehicle braking is accomplished hydrostatically and provides infinite degrees of braking control.

The suspension system consists of eight wheels rigidly attached to the body. Shock loads are absorbed in the low pressure, multiple tires. Suspension components were designed to withstand a 3 g load. Cargo capacity is half a ton.

For prepared roads, hard cross-country, and moderately soft soil operation, the vehicle rides on low-pressure tires. For operation on extremely soft, marginal terrain, a lightweight track system can be installed over the wheels to improve mobility significantly. The track system is simple to install and remove. Lateral loads are transmitted from the ground to the wheels through formed end guides on the grousers.

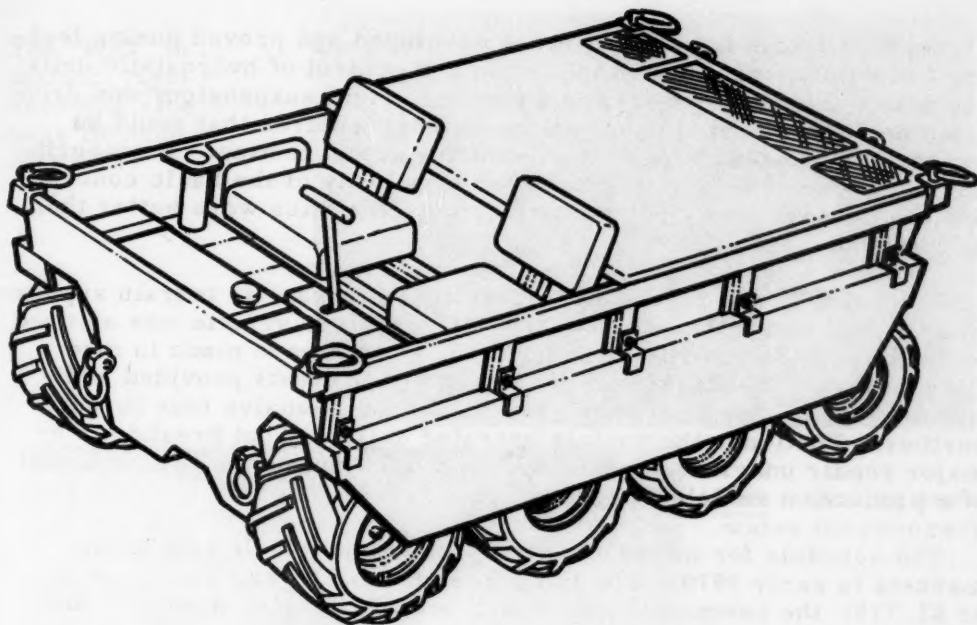


Table 1: KID Characteristics

<u>Weights</u>	
Curb	2,000 lb (910 kg)
Gross	3,000 lb (1,365 kg)
Payload	1,000 lb (455 kg)
<u>Ground pressure</u>	
	5.16 psi with wheels
	2.12 psi with tracks
<u>Construction</u>	
Lower hull	Steel
Upper hull	Steel
<u>Tires</u>	
Size	23 x 8.50-12 terra tires
Pressure	10 psi
Tread	46 in (1.07 m)
<u>Performance</u>	
Maximum speed, level dry land	25 mph (40 km/hr)
Maximum speed, water	1.5 mph (2.2 km/hr)
Gradeability	60 percent
Side slope	40 percent
Steering	Pivot
Range	100 miles (160 km)
<u>Dimensions</u>	
Length	96 in (2.40 m)
Width	60 in (1.5 m)
Height	40 in (1.0 m)
<u>Ground clearance</u>	
	9 in (0.23 m)
<u>Angle of approach</u>	
	90 degrees
<u>Angle of departure</u>	
	90 degrees

Several design innovations were developed and proved during testing and demonstrations. Application and control of hydrostatic units, the removable track-over-wheel concept, rigid suspension, and drive train design presented unknown operational features that could be properly evaluated or proved only during actual testing. Engineering and environmental testing proved the feasibility of the basic concept, and the cross-country performance characteristics were better than anticipated.

Following initial testing near Detroit, Michigan, in terrain approximating that of Southeast Asia, the KID prototype vehicle was shipped to Thailand. Extensive soil trafficability tests were made in mud flats typical of Asian farmland. Results of the tests provided additional proof of vehicle capability. During an extensive tour through northeast Thailand, the vehicle operated daily without breakdown or major repair under demonstration conditions exceeding that expected of a production vehicle in agricultural use.

The schedule for introducing the production vehicle into Asian markets is early 1970. The list price, f.o.b. Tyler, Texas, is to be \$2,775; the company hopes it will be able to bring down the cost and price as the volume of production increases.

[Excerpted from "Vehicle Design for Southeast Asian Environment," Transport and Communications Bulletin for Asia and the Far East, and modified with latest manufacturers information. New York: United Nations, Economic Commission for Asia and the Far East, 1968, No. 43, pp. 1-10. UN Sales No. E. 68. II. F. 20.]

EDITOR'S NOTE: In publishing this article, the Development Digest is illustrating some of the possibilities of a general approach to transport problems. Publication should in no way be construed as endorsement of the particular vehicle described in preference to others which have been or may in future be designed for the same or related purposes.

The "KID" in
action: right -
carrying rice
bags through
soft mud;



left - moving over
water (in reverse);

right - climbing
a slope.
(Photos: LTV
Aerospace Corp.)



Transport and Energy in India's Development

Edward S. Mason

[Differing modes of transport have very different energy requirements, and the various forms in which energy is used have different transport implications. In India the basic choices relate to a continuing dominance of coal for energy and rail for transport as against the growing automotive transport dependent chiefly on oil imports.]

Properly defined, transport investment should include total investment in railways, roads and road vehicles, pipelines, inland and coastal waterway development, ships and shipping, port facilities, airports and planes, and probably ropeways and other somewhat exotic transport media. On this definition, the bits and pieces of existing information suggest that transport investment, as a percentage of the total in less developed countries, is in the range of 15 to 25 percent. As a fraction of total public investment it is, of course, much more important.

Energy investment requirements are somewhat better understood. Estimates of such requirements ranging between 10 and 15 percent of total investment in most less developed countries are probably reasonable. Thus, transportation and energy together are likely to require from 25 to 40 percent of total investment in less developed countries. This is obviously a large slice of the investment pie.

Dr. Mason is Lamont University
Professor, Harvard University,
Cambridge, Massachusetts.

Interdependencies between Transport and Energy

An economy based on coal as its principal source of primary energy will inevitably generate large requirements for rail and, if possible, water transport. The requirements are large mainly because coal has a relatively low caloric content per ton, typically less than two thirds that of oil. The demand is for rail and water transport because these are, given certain minimum volumes and distances, by far the lowest cost carriers. The trucking of coal is impractical except for short distances. The earlier expectations of low-cost transport of coal by pipeline seem to have been disappointed. In recent years coal carriage has amounted to around 40 percent of total ton-miles of traffic on Indian railways.

Even though rail costs of coal per ton-mile are much lower than road transport costs, the delivered cost of coal per ton and per contained Btu rises rapidly with distance. At 300 to 500 miles from mine head the delivered cost is apt to be double the mine head price. When carriage runs to between 1,500 and 2,000 miles, as in India, the delivered cost can be four to five times the cost at point of origin. Since oil per ton contains twice or more the Btu content of high-ash-content Indian coal and since oil transport, even by rail, costs somewhat less than coal (largely because of much lower costs of loading and unloading), the advantages of substituting oil for coal rise rapidly with coal transport distances.

Furthermore, oil and gas have other transport possibilities which do not apply to coal. Above certain volumes, pipeline costs per ton-mile and Btu-mile are much lower than rail costs. The only transport medium that offers still lower costs is, under certain circumstances, water transport. Given certain initial price relationships, then, between coal and its principal substitutes, distance from sources of supply greatly favors the substitutes. Taking these considerations fully into account will largely influence not only the optimum volume of investment in transport and energy but the optimum allocation among the various modes of transport and sources of energy.

Hydroelectric generation avoids altogether the transport costs of bringing fuels to thermal plants. On the other hand, the location of hydrofacilities may frequently impose heavy transmission costs in getting power to market. The investment saved in transportation facilities may be more than overbalanced by the additional investment in the energy sector.

Coking coal used for making iron and steel usually requires washing, and the washing process creates supplies of by-product coal at the washeries. If power plants are located at the washeries, fuel

inputs become available at low or zero transport costs. The same economy of transport is obtained by locating thermal plants at the coal mines. Transmission of electric current can, then, for certain uses, substitute for the transport of fuels, and coordination of transport and energy investment will take account of these possibilities.

Refinery output of heavy fuel oils for industrial purposes produces at the same time diesel oils and lighter fractions for other uses. The availability of diesel fuels and gasoline for rail and road transport should have an effect on the choice among alternative modes of transport. The proper balance of products from refinery through-puts has been an issue in the energy policy of a number of countries, and sensible energy policy is apt to involve adjustments in transportation policy.

The Indian Case

Like many less developed countries, India is still heavily dependent on non-commercial sources of energy and primitive localized transport. Even today well over half of total energy consumption comes from firewood, waste products, and cow dung. Although no data are available on ton-miles carried by bullock cart as compared with other means of transport, there is no doubt that this accounts for a large fraction of total traffic. Nevertheless, investment in commercial energy and transport amounts to perhaps 30 percent of total investment, and the rate of growth of consumption of commercial energy and transport services is twice or more the rate of growth of Indian national income. During the last decade, commercial energy consumption increased at an average annual rate of 7.5 percent; ton-miles of traffic on the Indian railways increased at an average rate of 7.2 percent per annum and it is estimated that inter-city road traffic increased at a higher rate. The rate of growth of Indian GNP was about 3.5 percent per annum.

Despite the rapid growth of commercial transport and energy services, both transport and energy supply have lagged behind requirements. At times, these lags have constituted serious bottlenecks to India's growth. Shortage of railway capacity has been the subject of a series of official investigations in recent years. For a number of years, there have been both a shortage of electricity generating capacity and an inadequate distribution system. This has led to a cutting off of supplies in periods of excess demand, to limitations on amounts supplied to individual customers, and to refusals of applications for connections. If India is to make up arrears in both areas, meet the heavy requirements of an industrializing society, and accommodate a desirable, if not inevitable, shift from non-commercial to commercial sources, the share of transport and energy in total investment will probably have to

increase over the next decade or two. This discussion draws heavily from two studies, the "India Coal Transport Study" (International Bank for Reconstruction and Development Consultants, 1964); and the "Report of the Energy Survey of India Committee" (U. S. Agency for International Development-financed, 1964).

Dominance of Rail Transport

The organized, market-oriented, and rapidly growing sectors of India depend mainly on rail for transport and on coal for power. Although road traffic data are unreliable, railways account for approximately 80 percent of the ton-miles of intercity freight traffic. Coal accounts for nearly 80 percent of the commercial energy output.

The predominance of rail transport is partly a product of physical factors. Nature has endowed India with a system of rivers that does not lend itself to the development of inland water traffic. These rivers are mainly fed by monsoon rains which cause violent changes in channel depths and velocity of current. The Coal Transport Study undertook a comparison of the cost of carrying coal on the Ganges to Faizabad and Allahabad with present railway rates: rail-cum-water cost of carriage was estimated to cost about four times the existing rail rates on one of the most favorable inland water possibilities in India.

Nor, apparently, is there a large potential for coastal shipping. For the last decade coal has accounted for about half of all coastal traffic and in the year of largest shipments, 1962, amounted to only 1,600,000 tons. Recent coal shipments have been heavily subsidized since their costs have ranged up to twice the level of rail rates to the same destinations. Pipelines are an even less important part of India's transportation network. The pipeline now under construction from the oil fields in Assam to the Calcutta area is the only line of any length in India. To date, oil and gas discoveries have not been of a magnitude to justify further investment in this form of transport. In sum, the only alternative to railway transport of much quantitative significance is road carriage.

The predominance of railway transport has also been encouraged by the pattern of Indian industrialization. Strongly influenced by the government, heavy industry has been developed much more rapidly than light manufacture. The former industries are heavy generators of bulk traffic in the carriage of which railways have a pronounced advantage. In fact, only four commodity groups—coal, iron ore, limestone and dolomite, and iron and steel—accounted for 74 percent of the total increase in railway ton-miles from 1955 to 1962.

In addition, the importance of railways in the transport network has been encouraged by government policies inimical to road

transport. The railway administration in India is a separate ministry, well organized and possessed of a long-established and distinguished tradition. It exerts its very considerable influence to limit, where possible, the length of truck haulage and the diversion to the roads of high-rated traffic. Road transport, on the other hand, is the charge of a relatively small and understaffed unit in the Ministry of Transport. Although an Inter-State Transport Commission was established some years ago, it has had little influence on road transport policies.

Road Traffic

A series of road surveys initiated by the Coal Transport Study and carried out in 1963 on 16 routes by the Department of Transport yields an extrapolated estimate for India as a whole of about 16 billion ton-kilometers of intercity truck carriage. This is the most careful estimate of road freight transport made to date; if the figures are approximately correct, the Indian highways account for about 15 percent of combined rail and road intercity freight traffic. This is not a negligible percentage and, furthermore, road traffic has in recent years been increasing faster than rail.

This volume of traffic and rate of increase took place despite an appallingly bad highway system, a highly cumbersome vehicle licensing system, high tax rates on vehicles and fuels, and a method of tax collection that may well add more to the cost of carriage than the tax rates themselves. The total mileage of hard-surfaced national highways in India in 1962 was 12,676 miles. Of this, only 2,653 miles were double lane. Most of the bridges are single lane, and on heavy density routes this frequently means substantial delay in crossing.

Every truck, whether for private or public use, must have a permit issued by one of the intrastate Regional Transport Authorities, and in order to carry goods outside the region it must be countersigned by other authorities. Interstate trucking requires similar counter-signatures from other states. Many states insist on equalizing the number of permits issued by requiring reciprocity. No permit is issued without hearings, at which existing permit holders, the railways, and local and public authorities testify as to whether existing permits are sufficient or in excess of needs, which occasions long delays.

Taxes on road transport are levied at the federal, state, and local level, and the total adds up to a formidable impost. The central government imposes excise and import duties on vehicles, tires, fuel, and lubricants and an income tax on the earnings of truckers. The state governments levy sales taxes on fuel and vehicles,

passenger and goods taxes, and taxes on vehicle operations. Local governments employ wheel taxes and terminal taxes. The yield of all road transport taxes in 1960/61 was estimated at nearly two billion rupees, about double the annual cost of building and maintaining the Indian highway system. [Rs 7.5 = \$1.00] Total taxes on railway operations on the other hand were relatively light. Their yield in 1958/59 was 219 million rupees. Methods of tax collection add greatly to the cost of road operations. Most interstate traffic has to pay a tax in every state through which it passes. The administration of local taxes, particularly the octroi, is even more onerous. The India Road Transport Reorganization Committee reports with feeling on this subject: "While certain municipalities issue transit passes enabling through traffic to move between octroi posts, others insist on heavy deposits being paid by the drivers before vehicles can enter the municipal limits. Many municipalities do not allow vehicles in transit to pass through the octroi gates after 7 P. M., and on Sunday the gates are open only during restricted hours."

When one considers the state of the Indian highways, the level of taxation, the licensing system, and methods of tax administration, it seems little short of a miracle that road transport carries as large a tonnage as it does. Yet this tonnage is increasing rapidly and the larger trucking companies are earning a return at least double the rate of return on railway investment. The answer, of course, is in the value of service rendered by road transport. The cost per ton-mile of road carriage in India for all except the shortest distances is a multiple of rail costs and rail rates. However, the advantages of door to door delivery, the much greater speed, and other values of road transport to the user and to the economy as a whole, more than make up for this cost difference on much high-rated traffic.

The conclusion that emerges is that additional investment in road transport is likely to yield high returns, particularly if state and local tax administration can be simplified and licensing procedures relaxed. At the same time, the railways are, with the possible exception of certain sea coast routes, by far the lowest cost carriers of bulk commodities for other than very short distances. This is the type of traffic that is increasing most rapidly in India, and the railways will be hard pressed to keep capacity ahead of requirements. Much more of the high-rated traffic than that already shifted to road transport should be and would be shifted if India had a different road transport policy.

Energy Resources

The factors examined so far have tended to favor priority for expansion of road transport. But there are other weighty considerations

of resource endowment and degrees of dependency on imports which arise in the relations among transportation modes and energy sources.

The Indian subcontinent is not, on the basis of present knowledge, well endowed with primary energy resources. India has ample supplies of low-grade non-coking coal. The ash content is very high, averaging about 25 percent. The Energy Survey estimates that the washing of coking coal will yield a by-product content of as much as 45 percent of the weight of the raw coal. This means that the carriage of coal involves carriage of vast amounts of inert material.

The West Bengal-Bihar coal fields in northeast India produce about 80 percent of coal output—in 1963, 50, 100, 000 tons of a total of 63, 800, 000 tons. Over 50 percent of the value added in organized industry, however, is generated in western and southern India, which includes such industrial centers as Bombay, Madras, and Delhi. Close to 50 percent of all energy is consumed in this region, which means that coal is hauled over very long distances. The average distance for all coal shipped in 1960/61 was 726 kilometers. The outlying fields in north central India are increasing their share of total output and this will substantially decrease the haul to destination, but the ash content of these coals is very high and the average haul to principal areas of consumption is still long.

India is substantially better endowed with hydroelectric potential than with other primary sources of energy. Although hydropower in 1960/61 constituted only about 8 percent of commercial energy consumption (in terms of coal equivalent), it represented nearly 40 percent of kilowatt-hours generated. According to the Energy Commission, "There is understood to be little reason to think that the sites already exploited are significantly more favorable than the remaining sites, or that the average capital costs of exploitation per KWH is likely to increase progressively as exploitation proceeds." Projections of the Energy Commission suggest that by 1975/76, hydrostations will still generate about 40 percent of electric power produced in India. Even so, this will represent no more than 7 or 8 percent of total commercial energy consumption.

The currently known reserves of natural gas in India are small. Domestic oil production in India amounted in 1960/61 to a half-million metric tons. By 1963 this had increased to 2 million tons of which two thirds came from Assam and one third from Gujerat (near Bombay). Output in 1963 represented the equivalent of about 2 percent of Indian commercial energy consumption. Oil exploration in India is proceeding apace, however. [ED. NOTE: Whether domestic production will be able in time to grow as fast as consumption remains to be seen.]

There remains the possibility of nuclear energy. India indeed is one of the less developed countries in which the high delivered cost of conventional fuels opens large possibilities for nuclear development. The Energy Survey recognizes these possibilities but thinks the contribution of nuclear energy "to the problems of the next twenty years cannot represent more than a small fraction of India's total energy requirements."

The only important alternative to coal is imported oil. Oil imports now account for a large share of commercial energy consumption in India and that share has been increasing rapidly. In 1953 India derived 34 percent of her commercial energy from oil; by 1960/61 the figure was 40 percent. In that year only 5.5 percent of the petroleum used was domestically produced. Certainly India must push the exploitation of economic hydrocarbons, pursue vigorously the search for domestic oil and gas, and develop nuclear power in areas of high electricity consumption where the delivered costs of conventional fuels are exceptionally high. However, over the next decades, and on the basis of current evidence, a central policy problem in the energy field will be a decision on how rapidly and in what areas oil should be substituted for coal. The Energy Survey envisages that by 1970/71 oil will account for 50 percent of India's commercial energy consumption, "if supplies can be made available." By 1975/76 it may require 3.3 billion rupees (\$693 million) to pay for oil imports, which might then represent one third of India's total import capacity. The Energy Survey goes on to observe:

We have not regarded it as within our competence to determine whether this is too heavy a load on India's foreign trade. . . . It will be for the Government of India, on the advice of the Planning Commission, to consider whether the trends are likely to be dangerous to the longer term balance-of-payments policies and whether it may be wise to go even further in the direction of giving incentives to use Indian coal or electricity in preference to imported oil.

The oil-coal substitution problem obviously has an important bearing on the choice among modes of transportation. In India, this choice is essentially a choice between road and rail. The railroads can be run on diesel fuel, but trucks cannot—with existing technology—be efficiently run with coal.

National Planning and Pricing Policy

The allocation of transport and energy investments among alternative possibilities calls for careful comparisons of costs and benefits. Indian planning, however, has been allergic to allowing prices to perform their classical functions of permitting users a choice

among inputs best suited to their needs at prices covering the cost of meeting these requirements. There has been a heavy reliance on controlled distribution from producers to consumers. The pricing system has been distorted to accomplish certain social or political objectives, such as assuring low delivered prices of coal and other bulk commodities at long distances from the point of shipment. If the prices of finished products or services are to perform their proper function, they must be based on input prices that represent at least approximately the scarcity value of these inputs to the economy. This observation has special relevance to the inputs of capital and foreign exchange of which the Indian economy is in conspicuously short supply.

Both the Energy Survey and the Coal Transport Study use "shadow" prices for capital and foreign exchange in calculating what the Coal Transport Study calls "costs to the economy" of providing transport and energy services. The Energy Survey employs a rate of return on investment of 10 percent inclusive of taxes and a foreign exchange premium of 33 percent. The Coal Transport Study used 12 percent and 50 percent respectively. In arriving at these percentages, the consultants excluded import duties and excise and sales taxes on grounds that they are not payments to factors of production and do not represent the use of real resources.

The interest rates used by both studies in calculating costs to the economy are substantially above the returns currently accruing to investments in electric power and railway transport in India. According to the Energy Survey the average rate of return to all electricity undertakings in 1958/59 was 3.3 percent. In 1961/62 and 1962/63 the Indian Railways earned a return of 6.3 percent on book value of assets.

There is evidence, however, that Indian authorities are becoming aware of the inadequacy of return to investment in public undertakings and are tending to use a higher discount rate in screening investment projects. Which rate comes closest to reflecting the opportunity cost of capital in India is difficult to say, however. The returns on capital employed in 12 central government enterprises in 1961/62 varied all the way from 0.2 percent for Hindusthan Shipyards to 19.8 percent for Hindusthan Antibiotics; the average return for these undertakings was 4.5 percent. The ratio of adjusted net income to capital employed for 1,333 joint stock companies whose returns were tabulated by the Reserve Bank of India averaged, in 1961 and 1962, 12.8 percent, and by industry groups varied from 7.1 percent for jute textiles to 27.9 percent for matches. The return to investment in traditional agricultural production may be as low as 3 percent. On the other hand, Indian moneylenders lend at 25 to 30 percent, admittedly on very risky security.

If a shadow rate of return is going to be used in screening public sector projects and in fixing prices for their output, this rate should be applied generally. There is no case for applying it only to energy and transport undertakings while allowing other proposed investments to slip through a screen of much wider mesh. But the choice of a shadow rate of return on investment to be used as a screening device in choosing among investment opportunities is pretty much a crystal ball type of operation. My guess—and it is only that—is that the screening rate of 6.75 percent now used by the Indian Railways is too low, but that anything above the mystical 10 percent apparently favored by the World Bank and various Indian government commissions is difficult to justify.

An appropriate shadow rate of exchange is also needed to be used in comparing the relative value of foreign versus domestic inputs, and in comparing the relative value of exports versus domestic consumption. There are, of course, some monumental uncertainties. How would India's non-traditional exports respond to a uniform export subsidy of 33 percent, or 50 percent? Will India have to meet a colossal bill for food imports from its foreign exchange earnings? When one looks at the import requirements of India's proposed development programs, including the staggering requirements for imported oil already noted, it is difficult to avoid the conclusion that a 50 percent "domestic preference adjustment" is a much closer approach to an appropriate shadow rate than 33 percent.

Sensible decisions on investment in alternative modes of transport, alternative sources of energy supply and alternative technologies require the use of prices for important inputs approaching the scarcity value of these inputs to the Indian economy. It is difficult to approximate these values in an actual situation; nevertheless, any movement toward more appropriate rates is a step in the right direction. There is little doubt that the rates of interest used for screening investment projects in the public sector in India have been too low, and that the rupee is heavily overvalued. Any increase in the screening rate of interest up to 10 percent, and any increase in a "domestic preference adjustment" up to 50 percent, would thus represent steps in the right direction.

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Transport Sector Programs

Hans A. Adler

[Preparation of a transport sector program can be a useful effort but is not necessarily so. Review of recent transport surveys indicates that the costs of preparing a ten-year program are generally less than one fifth of one percent of the investments. If \$200,000 can be saved in an investment program of \$100 million, the survey is already justified, and the potential benefits are usually much larger. But there is little merit in preparing a transport study if the government is unable to carry out the measures it shows will be needed.]

The preparation of programs for the transportation sector of developing countries is an infant industry which has been growing rapidly in recent years. The World Bank is probably the organization most actively engaged in administering transport surveys, having participated in about 35 such surveys from 1964 to 1969. Other transportation surveys are being undertaken with the assistance of the industrial countries and other international agencies; in few instances are developing countries attempting surveys without outside assistance.

The impetus for these surveys comes primarily from three sources. First, there is an increasing recognition that macro-economic planning is not enough and that it urgently needs the support of detailed analyses of individual projects. Project analysis alone, however, is frequently not sufficient because in the transportation sector there tends to be a close interrelationship among individual projects;

Mr. Adler, formerly Chief Transport Economist of the Technical Operations Department, is Assistant Director of the Economic Development Institute, International Bank for Reconstruction and Development, Washington, D. C.

for example, the effectiveness of a port investment may depend on rail and road connections; the justification for a road improvement may depend on parallel or feeder roads. The function of the sector program is, therefore, to identify promising projects, to relate them properly to one another, to determine their priorities, and to relate all projects to the macro-economic plan.

A second reason for transport surveys arises because the transportation systems of most countries are severely distorted due to historical circumstances. Probably the single most important factor is the collapse of the monopoly which railways had for almost a century and the consequent painful adjustments of the railways to vigorous competition by road transport. A third and more mundane reason for the increase in the number of transport sector surveys in developing countries is the insistence on them by foreign governments and international organizations providing financial assistance.

The preparation of transport programs is particularly important because in developing countries a transport infrastructure is usually a prerequisite--though by no means a guarantee--of economic growth. In addition, transport requirements tend to grow at a higher rate than national income in the early stages of development. In a dozen Asian countries for example, the annual increase in rail and road traffic in the 1950s ranged from about 6 to 20 percent, while national income was growing at 2 to 5 percent. The ratio of capital to output is high for transport especially in its early stages. Investments in transportation often account for a large part of public investment, frequently 15 to 30 percent. A significant part of these investments in developing countries involves foreign exchange expenditures, often 40-60 percent and sometimes 75 percent. A new investment's operating costs also tend to include continuing foreign exchange expenditures on spare parts, maintenance equipment, tires and fuel.

Transport sector planning is also important, especially in developing countries, because governments own or control nearly all transport facilities. Railways, roads, ports, inland waterways, airfields and airlines tend to be exclusively public investments and the major private investments, such as motor vehicles, are usually controlled by production licenses, import restrictions and foreign exchange controls. Governments generally have the instruments to ensure that the program can be carried out. On the other hand, transportation is exposed to the threat of political interference, which could make planning based on economic criteria a wasted effort. Sound economic analysis may be helpful against political pressures.

Conditions for a Transport Survey

Three important conditions should be met before a transport survey is undertaken. The first relates to an understanding of the broad

transport policies which a government plans to pursue. The uneconomic use of government-owned transportation facilities for defense, political and social purposes is sometimes so extensive that the World Bank has on occasion agreed to participate in transport surveys only after reaching an understanding with the government on the broad transport policies to be followed. This is most important for the operation of railways because the collapse of their former monopoly position has created special difficulties for them and because they are particularly subject to governmental interferences. Will the railway be permitted to dismiss redundant workers and eliminate uneconomic lines and stations? Will new lines be constructed only if detailed studies indicate that the lines are economically justified? Will rates and fares be sufficient to cover at least the marginal costs of transporting each commodity and the full costs of carrying the traffic as a whole? A transportation study of Argentina, for example, found that of a total railway network of about 43,000 km, about 14,000 km of lines were uneconomic and should be abandoned, that an additional 5,000 km needed further study with an eye to possible later abandonment, and that the labor force could be reduced by 30,000-40,000, or 15-20 percent. It is no use to study these problems if for political or other reasons the government is not in a position to do anything about them.

A second condition is the recognition by the government concerned that planning is not a one-shot affair but a continuous process. Too many transport programs have been prepared by international consultants who visited a country for several months or even a year, and left nothing behind but a well-bound report. Such a report may help attract foreign lending and may even stimulate a new awareness of certain problems and their solutions, but however sound the program may be, its preparation is hardly worth the effort unless it can serve as an effective "kick-off" to continuous planning, increasingly undertaken by local experts themselves without foreign assistance.

If the survey is to have lasting value, every effort should be made to train local experts to staff a permanent planning organization. One of the best ways to do this is to create a counterpart organization, so that each of the foreign technicians works with at least one local counterpart. This provides effective, on-the-spot training. It also creates a local team of experts familiar with the program and the reasons for its recommendations, and able to assist in its implementation and modification. In any case, counterparts can help the foreign experts who are usually less familiar than they with the particular conditions of the country, the background of problems, the sources of information and the details of government organization. The participation of local counterparts in the preparation of the program should be supplemented with continuing—but

decreasing—assistance by foreign advisors for several years thereafter, and with the training of local experts abroad.

Brazil provides an example of an effective transport planning organization. Brazil had neglected transport planning for many years and found itself by 1964 in a situation in which an inefficient and costly transport system, with large deficits, was contributing materially to runaway inflation and balance-of-payments difficulties and was undermining the country's agricultural and industrial development. The government called upon the World Bank for assistance; terms of reference for the studies were drawn up and international consultants were selected. In the meantime, the government made vigorous efforts to recruit Brazilian counterparts. A separate agency was set up for this purpose, and about 80 Brazilian counterparts were selected. They worked full time with the foreign experts on the transport studies, and as a result Brazil has a core of transport experts who will be able to continue transport planning with progressively less foreign assistance. However, this successful effort was essentially a crash program to meet a crisis situation.

The third condition for a successful survey is that transport plans must be tied in with realistic planning for area and sector development—discussed below.

Scope of Program

The scope of transport programs can vary widely. The most typical—and generally the most desirable—program covers a country's entire transport system, including all modes of transport. An exception is urban transportation which has its own unique problems and is to a considerable extent separable from the intercity and rural transport network. Nevertheless, urban transport must be considered for total vehicle requirements, and to the extent that it affects intercity traffic, e.g., where urban congestion interferes with adequate access to a port, or where bypasses are needed.

Some programs are less broad. In India and Brazil, for example, the size of the country and the complexity of the transport system made it impractical to prepare programs which would cover the entire country at once. These countries were, therefore, divided into regions, with the idea of ultimately building up a country-wide program from the regional ones. Some programs do not cover all modes; a program for Argentina, for example, excluded aviation, and one for Honduras was limited to roads. This is usually undesirable. Many transport programs do not include, at least in detail, feeder roads for agricultural projects or those intended to open up new land for development. In these cases roads are a joint cost with other investments, and the realization of benefits depends

not only on the roads but also on these investments. The planning of feeder roads is, therefore, handled more effectively in agricultural surveys than in transport surveys, though transport programs frequently include financial allowances for such roads.

Some studies cover more than one country. A transport survey of Central America in 1965 included five countries, and several studies in Africa are also on a multi-national basis. This is important where major traffic flows go beyond the border of one country, such as those of landlocked countries like Chad and Bolivia.

Basic Steps

The preparation of a transport program can be divided into five distinct, though interrelated, steps. 1) Identify the basic goals which are being sought. 2) Prepare an inventory of existing transport facilities, their condition and utilization. 3) Forecast traffic and its distribution to each mode of transport. 4) Examine transport policies and operations to determine what improvements can make it possible to carry future traffic at minimum cost. 5) Prepare a detailed program identifying new investments and their priorities. Each step will be discussed separately below.

Objectives of the Program

Since transportation is a service designed to connect production and population centers with each other or with consumption centers, transportation cannot be said to have a separate objective independent of a country's developmental goals. A country's general strategy for economic development dictates the appropriate transport strategy, though the former must, of course, take into account transport costs as one of the relevant factors. Within this broader context, the objective of transport planning is to ensure that the traffic will be carried at the lowest cost to the economy.

It is one of the facts of transport life that governments use transport services extensively to subsidize a variety of social, political and defense objectives through rates and fares below cost. In some countries, all railway passenger traffic is subsidized while in others specific groups such as the military, school children, government officials, priests or commuters pay especially low fares. Aviation tends to be subsidized to promote a country's international prestige. While some of these subsidies are the result of conscious government decisions, many are quite inadvertent because costs are not known or because of a general reluctance to raise tariffs.

There may, indeed, be a limited role for subsidies to transportation. For example, new transport systems may deserve support as

a form of infant industry, as in the case of aviation in its early stage. There may also be instances where the promotion of transport per se is a legitimate goal, as where a country's social and political integration can be promoted in this way. On the other hand, a government can hardly have a legitimate interest in promoting the less efficient transport alternatives. Moreover, even if the social, political and defense objectives deserve government support, subsidized transportation is a particularly inefficient method for achieving them.

The subsidy usually has to be financed by charging prices higher than costs for other transport services; this was possible for the railways when they still had a monopoly position but has become increasingly less feasible with the growth of road transport. Passenger subsidies are frequently financed by charging higher rates for freight—either for bulk commodities, whose transportation is essential for the country's industrial growth, or for general cargo, whose shift to road transport is thus needlessly accelerated. (In the Soviet Union profits on passenger services have helped to subsidize freight traffic, in sharp contrast to the practice in most countries.) Transport subsidies tend, in effect, to support indiscriminately a multitude of diverse activities ranging from business functions, vacations and social visits to religious pilgrimages; these hardly deserve equal government support and, if openly avowed, would rarely receive it. Transport subsidies distort the location of new industries or population, and discourage existing industries from moving to more economic locations. It is sometimes argued that keeping transport prices low, regardless of cost, helps to reduce inflation; this may be valid in the very short run but it merely increases government deficits, which are at least as inflationary as higher transport prices.

Instead of using the transport system as a subsidy device, it would be much more efficient to have the responsible government agencies finance the subsidy directly through their own budgets, either by supporting the ultimate objective directly or by buying the transport service at commercial rates. If, for example, a government deems it desirable to promote the production of iron ore, direct payments to producers are more efficient than hidden transport subsidies. It is not surprising that many of these objectives look much less important to the interested government agencies when they have to finance and justify them directly in their own budgets than when they can impose the costs on others.

Transport Inventory

Most developing countries do not have adequate, up-to-date and readily accessible information about their transport system. The preparation of an inventory of available facilities, and of their condition and utilization is essential even though it is a time-consuming job.

The inventory should cover not only the physical facilities, but should also indicate the degree of their utilization, the volume and composition of traffic flows, the costs of transport and the related tariffs, the financial situation of transport enterprises, and the government's transport policies. Such an inventory can be prepared most readily for railways and other transport entities which are operated on commercial lines and have appropriate accounting and statistical systems. Most railways have at least some information on their facilities and rolling stock (including type, condition and utilization), on traffic carried, on overall costs and tariffs, and on their financial condition. However, in the case of many railways the data are incomplete; few railways, for example, have sufficient information on the origin and destination of much of their traffic, or on traffic by individual lines, on the cost of carrying different types of traffic (commodities as well as passengers) by individual lines, on the replacement cost of assets at present values, and on maintenance costs of various equipment. In addition, the available data are all too often inaccurate. For aviation, ports and ocean shipping, the situation is similar to railways, but reliable information on inland shipping and roads and road transport is even rarer. Most countries have a general idea of the length of their road network and how much of it is paved, but few have an inventory which describes the condition of the roads, their width, grades, curvature, capacity and traffic, all of which are necessary for intelligent planning. Similarly, it is essential to have an inventory of the motor vehicle fleet by type, capacity, age, operating costs, etc.

The collection of road traffic information is unusually complex. Many developing countries have begun only recently to make traffic counts, and these are generally available for only one or two past years, for a few days during the year and at a few locations which may not be representative. A proper traffic inventory should at least provide information on major commodities and passengers carried, their origin and destination, the type of vehicle, its capacity and load factor. Because traffic may vary widely during the day, the week and the seasons of the year, it is necessary to get hourly and daily traffic data, as well as enough information on seasonal variations to make reasonable estimates of annual traffic. Only after the existing traffic pattern has been established is it possible to estimate future traffic.

Forecasting Traffic

Since future traffic depends on developments in the industrial, agricultural, mining and other sectors of the economy, and on population developments, traffic forecasts can be no better than forecasts of developments in these areas. It is not sufficient to estimate output in macro-economic or sectoral terms. Roads, railway lines

and ports are fixed at definite locations, and it is necessary to estimate not merely future production and consumption but also its specific location. The best time for a transport survey is when planning is also going on for other sectors.

In general transport forecasts and plans should be limited to about ten years—five years in detail and an additional five years in less detail. Macro-economic planning should, of course, have a longer horizon and beyond the ten-year period might well include expenditures under projects previously started, projects which were reviewed for the ten-year program but found to be premature, and global estimates of transport requirements on a macro-economic basis.

After estimates have been made of future production and consumption, these must be translated into traffic. This is generally done on the basis of past relationships between output and consumption and traffic requirements, with adjustments for foreseeable future changes, such as a possible decline in the railway's share of certain traffic, changes in relative costs, etc. Recently attempts have been made to build transportation models, which are an expression of the mathematical relationships between the magnitude of traffic-generating factors and the volume of the resulting traffic. Unfortunately, the factors are frequently complex and the construction of the model difficult and time-consuming. For example, an initial model for coal transportation in the Eastern Region of India was able to explain only about one half of the actual coal traffic. It became necessary to proceed with the more standard techniques of reliance on past traffic trends adjusted for specific new developments in sight. Nevertheless, such models can be useful tools and they will no doubt be used increasingly in the future.

The final step is to estimate the division of traffic among the various transport modes. In principle, the traffic should be allocated to the particular mode which can carry it at lowest cost. In this connection, three special problems deserve mention. First, determining costs is frequently difficult because of inadequate data and because the relevant costs are those to the economy, which may differ from private, financial costs. Second, traffic will in practice not move via the low cost carrier if the rates charged do not reflect transport costs. This is frequently the case, especially for railways, where rates take into account the value of the commodity and tend to be uniform among different lines in spite of cost differences. User charges for roads and ports also rarely reflect costs properly. The transport survey should indicate the resultant distortions and recommend the steps needed to eliminate them.

A third difficulty arises from the fact that there are important qualitative differences between the various transport modes. Road

transport, for example, provides a door-to-door service, usually with substantial savings in time compared to railway service, greater frequency and reliability, lower breakage and losses, quicker settlement of claims and other similar advantages. This is particularly important for general cargo and accounts for a major part of the trend to road transport, even though the direct transport costs by road may in fact be higher than rail costs. It is important to keep in mind that the ultimate aim is not lowest transport cost but lowest cost for the delivered goods; these two are not always the same. The neglect of these total distribution costs in some surveys accounts for unduly optimistic forecasts for rail and coastal shipping potentials and underestimates for road transport.

Fortunately a number of practical considerations make long-term traffic forecasting more manageable than it might appear at first sight. First, a major part of the traffic of many railways and ports consists mainly of only a few bulk commodities, such as coal, ores and grain, so that the analysis can be largely limited to these. Second, much of the future traffic, especially in the short and medium term, is traffic which exists already, and basic patterns in the location of industry, agriculture and population do not tend to change drastically overnight. Third, many transport investments are relatively lumpy. A port berth might be justified for 80,000 tons of general cargo per year but might also handle efficiently 150,000 tons, so that a precise estimate of whether the traffic will be 80,000 or 125,000 tons may not be needed; for bulk cargo, the range might be as much as 300,000 to 1 million tons or even more. Similarly, a paved two-lane road may handle as many as 5,000 vehicles per day, so that estimates of 3,000 or 4,000 vehicles may still lead to the same investment.

Fourth, in many cases the forecast need only be made until the time when traffic reaches the project's capacity, provided it can be assumed that traffic will not decline thereafter; this is frequently the case, especially for roads. Fifth, because future benefits are discounted by opportunity costs of capital, which in developing countries tend to be as high as 10 or 12 percent, the correctness of forecasts in the more distant future is substantially less important than it would be at lower discount rates. Finally, because transport, and especially road transport, is nearly always very dynamic in developing countries, an overestimate of traffic might be made up a short time later, so that the cost of the mistake would be less than if the estimated traffic level were never reached. From this point of view, investments in railway lines tend to be much riskier because traffic for most railways has been growing less rapidly than for roads, while the life of railway track and equipment tends to be very long.

Transport Policies and Operations

Many transport programs neglect to make a thorough review of transport policies and operations to ensure the efficient utilization of existing investments and to minimize the need for new ones. This is particularly important for developing countries in view of their serious shortage of capital, the large requirements for transport investments and the heavy foreign exchange component of these investments. Some of the most important policies which a transport survey should examine include:

a. The rationality of the criteria used in deciding on new investments. Few countries base transport investments on the systematic application of cost-benefit techniques; where such studies are made they tend to have such deficiencies as the use of low financial interest rates instead of the higher economic (opportunity) cost of capital, the failure to take into account alternative road transport when building a new railway line, or vice versa, chronic underestimation of costs, and innumerable others.

b. The relationship of tariffs to costs. An efficient allocation of funds to transportation compared to other sectors, and an optimum distribution of traffic among competing transport modes, require that rates and fares reflect the costs of the principal categories of traffic handled—not only for the network as a whole but also by individual line. The survey should, therefore, identify tariffs above and below costs of major traffic categories, the resultant distortions in traffic and investments, and whether adequate freedom exists in fixing and adjusting tariffs. Because the charges for public transport in many developing countries are frequently below cost, transport unfortunately tends to be a serious drain on public savings. Much can be learned from Soviet practice, where the railways make substantial contributions to the government budget in addition to financing the expansion of railway capacity.

c. The adequacy of user charges. In most developing countries, governments do not charge the users of roads, ports, airports, etc., adequately for the cost of these services through fuel taxes, license fees, tolls or other charges. In most Latin American countries, for example, the users of roads pay for less than half of road costs. This is likely to lead to distortions between different transport modes, overinvestment in transport as a whole, inefficient location of new industries, and an undue burden on the tax system and on public savings.

d. The nature of the regulatory system. The transport survey should also review governmental policies on the regulation of trucking and bus services, including licensing, route and distance

restrictions, limitations on rates and fares, weight limits, and other controls, as well as their enforcement. Many developing countries have inherited regulatory systems developed in Europe and the United States to protect railway monopolies or to meet the special problems of the depression of the 1930s.

e. Other policies which should be reviewed include: 1) whether taxes, including import duties, are neutral among the various transport modes; 2) whether the government discriminates in the availability and terms of financing among the modes; 3) whether the government tries to allocate traffic directly to a specific mode; 4) whether the government controls the production or imports of vehicles, spare parts, etc., in a way which discriminates against a particular mode; and 5) whether the government imposes any special responsibility on a particular mode without adequate compensation.

Because governments can develop and administer their transport policies only when properly organized to do so, a transport survey must also review the institutional arrangements. It must ask whether a central transport organization exists at all, and if so analyze the scope of its authority, its staff, and whether adequate statistics are available, so that policies can be established and applied intelligently.

The opportunities for minimizing the need for new investments by operational improvements are usually very extensive, especially for railways and ports, but also for roads. Such improvements relate to all phases of operations: from the better utilization of rolling stock and other equipment to the better maintenance of roads, better labor practices, modern accounting and statistical systems, and appropriate organizational arrangements and administrative procedures.

For example, the Brazilian Federal Railways had intended to spend about \$80 million on rolling stock during a recent three-year period. This investment had been based on a traffic forecast and assumed more or less the prevailing operational practices. However, a review of these practices indicated that productivity could be drastically increased. Twenty-five percent of the diesel locomotives were out of use when better maintenance facilities could have reduced this to less than 10 percent; the utilization of serviceable diesels was only about 70 percent, as against the 85 percent common in other countries; the average turn-around time of freight cars was about 13 days, when 8 days would have been a reasonable goal; the average speed of most trains was less than 14 miles per hour, when better operations in stations and yards, better track conditions and signalling equipment might have increased this to perhaps 20 miles; because of the seasonal nature of agricultural production, the Railways had considerable excess capacity in the off seasons, even though more silos and other storage facilities might have

reduced the extremes of seasonal transport requirements; and trains were generally short because station platforms and marshaling yards had never been enlarged. What the Railways really needed was not large new investments in rolling stock but measures to improve the utilization of existing stock. It was estimated that with such improvements it would be possible to reduce rolling stock requirements by about \$50 million, though it was, of course, necessary to increase other investments.

The operational problems of many ports are especially acute. At some berths of the port of Calcutta, for example, wheat is unloaded by bagging it on board ship, unloading it, and then emptying the bags in order to transport the wheat by rail in bulk. As a result the unloading rate per day is about 1,000 tons per ship, compared to 4,000-6,000 tons at other Indian ports using mechanical unloading facilities.

Organizational and administrative arrangements are also frequently unsatisfactory. Many railways do not have adequate authority over day-to-day operations; highway departments may be saddled with responsibility for other public works; the various port activities, such as pilotage, tug assistance, loading and unloading, customs, storage and inland transport are often not properly integrated.

The Investment Program

Once future traffic patterns have been estimated and the opportunities for policy and operational improvements have been taken into account, the next step is to decide on the new investments needed to carry the traffic efficiently. It is useful to divide investments into three basic types: investments needed to increase capacity, those to replace old equipment with similar but new equipment, and those necessary for modernization—for new and different equipment.

In the United States, for example, the history of railway investments can be divided into three stages. In the initial period up to the end of the 19th century, most of the investments were to increase track and other capacity; thereafter, until World War I, investment in rolling stock became more important. After 1920, railway passenger traffic declined drastically, freight traffic increased only modestly, and the railway network was reduced by almost 40,000 miles so that net investments did not increase significantly despite modernization. In the early period, large indivisible investments were made, which were only gradually completed; once the basic network existed, output was free to expand with relatively little additional investment. This pattern of investments is relevant for developing countries. In Argentina and Brazil, for example, hardly any

new investments are needed to increase railway capacity; investments are only required for replacement and modernization. The Indian Railways, on the other hand, still require large increases in capacity and, within their limited resources, have to give lower priority to modernization.

In road construction, too, the first investments are to create capacity, but after a basic network exists the major effort consists of improving it. Paving a gravel road is a form of modernization, but also increases capacity. As for road vehicles, the initial effort must be to create a minimum fleet. In the early stages of the growth of the fleet, replacement tends to be only a small part of total investments in vehicles because they are used for long periods—in India, for example, as much as 20 years. Such long periods may partly be explained by the high capital costs, while maintenance costs are relatively low due to the large labor component. As these relationships change, vehicles are replaced earlier and replacement becomes an increasing proportion of total investment.

Investments to expand capacity are most directly related to increases in freight and passenger traffic, so these can be translated readily into rolling stock requirements, additional port berths, or aircraft. Because of fluctuations in demand, such as those caused by seasonal variations in agricultural output, there is inevitably excess capacity during some parts of the year. However, if demand is larger than forecast and if capacity cannot be quickly expanded, there is the danger that transport may become a bottleneck to economic growth. To calculate the proper level of reserve capacity requires a delicate balancing of the extra costs involved and the costs of not being able to carry some freight at all and thus slowing down economic development. The problem of excess capacity is perhaps less serious for road transport because of the greater flexibility of the vehicle fleet and the fact that most roads in developing countries operate far below physical capacity.

The proper timing for replacement of equipment depends primarily on two types of factors: first, the capital costs of new equipment minus the scrap value of old equipment, and the relative costs of maintaining them, which tend to increase with age; and second, obsolescence, i. e., the availability of new equipment incorporating technological improvements. The best timing of replacement investments is by no means the same for different countries. The labor component of maintaining freight cars, for example, is substantially greater than of producing new cars. In countries with low wages and a high cost of capital, replacement should take place later than in more developed countries. This is, in fact, what happens. For example, a study of the optimum age for replacing freight cars in India indicates that it is somewhere between 40 and 45 years; a

similar analysis for New Zealand indicates it to be no more than 35 years.

The third type of investment is for modernization of facilities or equipment which have become obsolete because of technological improvements or other radical changes. For example, in the replacement of steam locomotives, the relevant comparison is no longer between the capital and operating costs of new and old steam engines, but with the costs of diesel or electric locomotives. In the case of roads, modernization is dictated by considerations such as large increases in traffic volume beyond road capacity, the use of heavier or bigger trucks, and higher speeds. Port facilities might become obsolescent because of the use of larger ships or a shift to container shipments of general cargo.

Once the investments needed to increase capacity, to replace old equipment and to modernize have been identified, the next step is to determine priorities among them. This involves generalized cost-benefit comparisons: at first these must be based on relatively rough, general estimates, but they should be refined at a later stage when feasibility studies of individual projects are undertaken. At the level of the transport sector program it is not possible to make detailed forecasts for each individual road section, and forecasts must, therefore, be limited to such broad categories as short- and long-distance freight and passenger traffic, by major types of road. Similarly, it is sufficient to use general criteria for unit benefits, such as the reduction in vehicle operating costs when gravel roads are paved, or the value of the time of ships which is saved when port congestion is reduced. For railways, it is sufficient to focus on the half dozen major commodities and to use more generalized assumptions for estimating general cargo traffic.

Priorities should be determined not only for each transport mode, but also among modes; most transport programs are deficient in this respect. There are two special problems in establishing priorities. Comparisons are difficult when the quality of service varies widely as it does between rail and road. Secondly, while techniques for calculating the benefits of cost-reducing investments are reasonably satisfactory, the benefits of capacity expansion to handle more traffic are difficult to calculate because they involve estimating the net value of the new output.

Determining the proper overall size of the transport program requires, in principle, a comparison of the marginal transport investments with those in other sectors, such as education, agriculture or even defense. Economics at this stage has not developed adequately the tools for each intersector comparisons. In theory, all transport investments are justified with a rate of return higher

than the country's opportunity cost of capital, but in practice programs based on this criterion have generally been larger than seemed justified for other reasons. There may be a number of reasons for this, such as failure to use proper estimates of real costs for capital, labor and foreign exchange, the chronic underestimation of costs, institutional rigidities which prevent the free flow of funds into transport or a particular mode, or the failure to work out project interrelationships, with resultant overcapacity. There are, also, technical limitations in that many highway departments, for example, are inadequately staffed for the efficient planning and execution of road works, so that sharp increases in investments cannot be undertaken quickly.

The transport program should indicate not only the physical investments needed, their costs, priority and timing, but also how the program should be financed. There are essentially three major sources of finance: charges on the users of transport services (whether earmarked or not), revenues from general taxation and domestic borrowing, and foreign aid. The first requires, for example, a forecast of railway revenues and expenditures to indicate to what extent the railway will be able to finance its investments from depreciation reserves and profits; if such internal sources are inadequate it may be appropriate to increase tariffs. Similarly, the level of road user charges, e.g., gasoline taxes, or port charges will have to be examined to determine possible financing from these sources. The foreign exchange costs of the investment program need to be determined because foreign lending is frequently restricted to the financing of imports. While the amount of foreign assistance is only to a limited extent within the control of developing countries, the distribution of investment financing between the government budget and the transport users is. In most countries a much greater emphasis can and should be placed on financing through adequate user charges.

[Condensed from "Preparing Transport Sector Programs, " Sector and Project Planning in Transportation. Washington (D. C.): International Bank for Reconstruction and Development, 1967, World Bank Staff Occasional Papers Number Four, pp. 3-31. NOTE: The Annex to this document provides an outline of "Terms of Reference for a Transport Survey." Requests for reproduction should be made to the World Bank.]



LAW AND DEVELOPMENT

THE INTERNATIONAL COURT OF JUSTICE,
IN THE HAGUE, NETHERLANDS.
(PHOTO: UNITED NATIONS)

Legal Development in Developing Countries

Peider Könz

[The development of law in Asia and Africa has been heavily conditioned by the colonial experiences of most countries, introducing them to Western concepts but in ways which have often left a residue of passive acceptance or indifference. Countries must develop their legal systems creatively, and in their own ways.]

During the past two centuries law has demonstrably played a role both as an instrument and as a source of innovation in the political, social and economic development of many of the most advanced countries of Europe and North America. The term "law" refers to the total legal culture, comprising not only rules and institutions, but also the response of society to law, that is law as it is actually understood and applied. The mechanisms by which social objectives are articulated, aggregated and accepted as "law," as well as the professional groups—lawyers, judges, legislators—involved in this process must be viewed as an integral part of the legal system.

It can be assumed that a relationship between law and the process of change exists also in the countries now described as developing, and that the legal system provides some indicators by which development can be evaluated and, to some extent, predicted. However, the difficulty of identifying relevant performance indicators, which by necessity vary in time and from country to country, is particularly evident if one attempts to evaluate the legal systems of the developing world today, where needs and priorities

Mr. Könz is Vice President and
Director for Asia, International
Legal Center, New York.

have generally not been articulated with sufficient clarity. Certain assumptions have to be made as to what these priorities might be. For instance, national identification and integration are considered priority objectives. Basic legal rules and institutions which are understood, accepted and effectively complied with by the population at large are considered more important than, and probably conditions precedent for, more sophisticated norms, e.g., in the areas of business law, foreign investment and even secularized family laws. We have also assumed that the performance of legal systems in areas of urban growth is more indicative of their developmental role or potential for a more modernized future than law in rural or tribal settings. These assumptions may of course be inaccurate. The point should be made, however, that even allowing for some undisputed universal values, performance indicators cannot simply be transposed from one legal system to another. There are differences between and among European, North American and third-world models, and these differences are obviously reflected in the role of law in the development process.

The Setting of Legal Development

A common characteristic of the legal systems of most developing countries is that they were imposed from the outside by European rulers, so that they emerged from the colonial period without live roots in the local society and culture. Foreign legal systems have often been imposed by force, and major transplants have at times been successful, e.g., on the European Continent during the period of Napoleonic influence. But the determinant feature of colonial occupation was that indigenous society did not participate in the legal and legislative process with the exception of a relatively narrow elite, trained abroad and identified with the colonial power. The majority lived in a legal twilight, in which compliance with modern legal norms was not expected. Where traditional law was retained, it possessed neither adequate means of enforcement nor mechanisms which would ensure its adaptation to meet developmental exigencies. Indeed, there was little pressure for innovation within the traditional legal systems. The needs for change, if any, were met by the foreign law, which became the main channel for secularization and modernization.

Independence or emancipation represented significant legal facts, reflected in constitutional instruments patterned generally on European models. At times the political system was given a theocratic or a secular orientation. Provisions relating to fundamental rights and to the role of the judiciary were inspired by American concepts or, later, by the European Human Rights Convention. In a number of countries Socialist principles were embodied in general constitutional provisions regarding property rights and the socio-economic

orientation of the state. New land reform laws and basic social legislation reflected this orientation and, where complied with, have had an obvious impact on society.

In subsequent years, however, the legal systems reverted to a more static role. The legal profession, which had often led the struggle against colonialism, became again a conservative and relatively unimportant element of society. In some countries, the charisma of post-independence political leaders undoubtedly detracted from the importance of law as an instrument of change. In others this was due to the authoritarian nature of the political system. To be sure, new technical and economic legislation has been adopted since independence, and in many countries constitutions have been adopted, repealed, amended and rewritten with remarkable facility. These changes, however, have generally been quite superficial in that they did not lead to any systematic growth of new and durable concepts. Where revolutionary transformations occurred, as in several Near Eastern and Francophonic African countries and in Indonesia, they led to efforts at subsequent legitimization using devices derived from foreign norms and institutions generally compatible with the legal systems implanted by the former colonial powers. Even in such secular and democratic countries as India, law has not been particularly responsive to environmental needs. Nor has it, to any appreciable extent, retarded processes of national disintegration or degradation of authority where they occurred, or protected ethnic or religious minorities, or guided the conduct of developing nations in international affairs.

It may seem strange that, under these circumstances, legal systems which have their roots in the civil and common law of Western Europe have survived with relatively little change throughout Africa and Asia, with the exception of China. This continuity of the legal order, and its sluggish pace of change since independence, might be interpreted as evidence of the inherent strength of Western-inspired legal values, rules and institutions. Yet this might also be due to inertia of foreign-trained elites, or of centralized bureaucratic structures, and to a general sclerosis of the system.

It would be too easy to dismiss all this as a temporary phenomenon. The reasons for the insensitivity of law to the development process appear to run deeper. Most developing countries do not consist of purely primitive or traditional societies. They are "modern" in the sense that North America and Northwestern Europe were modern in the 19th century, but they differ from earlier Western models in their position relative to the more advanced countries. The gap between industrialized and emerging nations has been particularly noticeable in terms of per capita income, and their scientific and technological capability. In the area of social and political

institutions, progress toward a participatory society, more equal distribution of power and resources, and more sophisticated rule and structure differentiation may have been spectacular in many of the new nations; yet even there, the gap between the advanced and the emerging countries is still apparent. This persistent difference between poor and rich nations, and the even wider gap which results between the poor countries' expectations and their economic, social, and political realities, cannot but produce frustrations which are more conducive to revolutionary than to evolutionary change, and to irrational rather than to rational processes. Law, in such an environment, tends to be considered an obstacle and not an innovatory tool.

While the inadequacies of existing legal systems in a changing world may be demonstrable, it should also be remembered that the adoption of foreign models during or after the colonial period has often facilitated, or at least shown the way to, secularization of the legal order. It has introduced democratic concepts which are as valid in Africa and Asia as they are in Western countries. Even in instances where it was disfunctional or incongruous with the needs of the society to which it was applied, foreign or foreign-inspired law has, in a static sense, often been accepted as part of the local legal culture. This appears to be the case in India with the common-law model which, significantly, took the form of codes, and probably in Turkey and North Africa for the Swiss and French models. Nevertheless, the dependence on foreign models represents a weakness which can only be overcome by the passage of time and by deliberate efforts to involve the population at large in the legal process.

Need for "Legal Engineering"

In 18th- and 19th-century Europe and North America, social, economic and political changes were relatively gradual, and the process of change sprang essentially from forces within society. By contrast, the decolonization process as well as the articulation of modern social and economic ambitions in Asia and Africa were generally provoked and continue to be conditioned by powerful external forces. The resulting pressure on the legal order in these countries, combined with the fact that existing law is largely derived from out-dated colonial models, calls for a sophisticated approach to law reform. The scope and need for "legal engineering" are thus far greater in the countries of the third world than in Europe or North America, where changes can be brought about gradually, by an incremental process or by well-established legislative mechanisms.

It is painfully obvious, however, that legal engineering, or the applied science of law and development, is still in its infancy. Generalities, "pure concepts" and universal models of legal development

are of little help. Legal engineering presupposes specific knowledge of the interaction, positive or negative, between law and other factors of development, and this implies a functional analysis of the legal system at large, as well as of particular norms and institutions. Such a descriptive and predictive analysis must by necessity be based on empirical data relating to complex environmental factors which vary from country to country. It also requires a yardstick by which performance can be measured, and the identification of objectives to be attained by legal innovation. None of these inputs required for rational legislative planning are readily available in developing countries. Empirical data, where they exist, are fragmentary. Values and objectives are not clearly defined.

This is not to discredit the concept of rational planning or legal engineering. Indeed, it provides the best hope for a creative growth of law in developing countries, and for its integration in the development process. It must be realized, however, that deliberate efforts are required to make this possible. Legal scholars, and law commissions concerned with global strategy planning as well as with specific projects of law reform, have a major role to play in this connection. There is an increasing recognition—more, perhaps, on the part of economists and political planners than by the legal profession—that the legal order is an essential ingredient of the development process, and that legal development, in the broad sense of the term, provides the only alternative to irrational (and therefore often disfunctional) forms of revolutionary change.

Among the priorities of legal development are a dynamic legal profession, a higher degree of involvement on the part of those to whom the law applies, and deliberate efforts to relate the legal system to the context in which it functions. This can generally not be accomplished, on the one hand, by "indigenizing" the law—often this would mean a return to archaic structures which have long ago lost their vitality—nor, on the other, by adoption of sophisticated legal systems irrelevant to, or not understood by, the particular society expected to be governed by them. Such extremes invite non-compliance, and non-compliance even in a limited area can become a focus of infection which ultimately affects the entire legal order. This is true in Western countries as well.

The most significant developments, or needs for change in Asia and Africa relate in our opinion to basic areas of the legal system: the administration of justice, personal status and family law, and the legal profession itself. These are significant and basic not because they are intrinsically more important in a functioning system than constitutions, fundamental rights, or sophisticated company laws, investment laws, tax laws or legal aid schemes, but because they condition the degree of acceptance, and thus of effectiveness, of the entire legal order.

Judicial Administration

It has become apparent that in many countries of Asia and Africa secular judicial systems based on Western patterns are insufficient and at times dysfunctional. The problem arises generally in connection with the lower courts. At this level, there is first of all a serious shortage of qualified judges. Litigants are faced with delays and expenses which reduce the effectiveness of justice. More fundamentally, Western-inspired procedures and rules of evidence appear artificial, e.g., limitations on the admission of hearsay evidence.

The response of society to these shortcomings has oscillated between non-compliance and abuses of the system. In the Far East and in many African countries, the secular and Western-inspired courts have been largely ignored. Even in groups which are culturally and economically as sophisticated as overseas Chinese communities, disputes are still settled according to traditional methods, i.e., within the family at large, clan or tribe, and with little or no regard for substantive norms provided by the national legal order. In other instances, e.g., in India or in the Philippines, the adversary system introduced during the colonial period has been accepted, but has resulted in what can only be termed as excessive litigiousness.

Faced with these difficulties, several developing countries have turned to conciliation methods and lay justice at the local level, at times accompanied by a revival of traditional or religious structures. In a country as legally developed as Ceylon, for example, there exist now over 200 local conciliation boards which function without professional judges and lawyers. This approach does, in fact, present a number of immediate practical advantages, and the simple justice dispensed by conciliation boards or lay tribunals is more readily understood and accepted than sophisticated legal norms. However, such simplified forms of dispute-settlement provide a transitional solution only, which might even become a serious obstacle to the development of modern legal systems. Lay judges and conciliators are either political appointees, vulnerable to changes in the regime, or religious or social leaders identified with the traditional order and therefore more conservative than young professional judges. While the justice dispensed by them may be more readily accepted, it is also more arbitrary and lacking in technical accuracy, as well as in the basic guarantees of impartiality and consistency which are required by modern political, economic and social systems.

For a number of years to come, many developing countries may hesitate between the immediate advantages, practical as well as political, of simplified justice and the long-term advantages of secular courts employing professional judges and lawyers. Given the paucity of trained specialists, a coexistence of the two systems may

be the only practical interim solution. In the long run, however, the solution will only be found in the training of more and better judges, in their adequate remuneration and in deliberate efforts to relate the law, especially rules of procedure and evidence, to conditions prevailing in the society to which it is to apply.

Family Law, Personal Status and Inheritance

This is the area in which the colonial period had the least impact on legal systems, in that traditional structures were either tolerated or deliberately retained. Traditional structures meant, in fact, continued dependence on religious, ethnic and at times tribal affiliation. The effect was twofold. On the one hand, family law, administered by institutions which were outside the mainstream of political power, became the bastion of conservatism, impervious to innovation and even adaptation. On the other hand, a patchwork of diverse and parallel family law systems survived to the present day within many of the former colonies or protectorates whose frontiers had been drawn without any regard for ethnic criteria (e.g., in Africa), or had been opened to foreign immigration (e.g., East Africa and Southeast Asia).

Understandably, independence brought strong pressures for change both in terms of modernization and of unification. One obvious method to attain both objectives was to secularize family law by adopting a Western model, as had been done in Turkey after World War I. But Western models are no longer politically attractive. There is a growing awareness (e.g., in Islam) that modernization can and should be attained from within, and that such concepts as monogamy, equality of women and equal sharing among descendants could be reconciled with, and at times be derived from, traditional sources of law. This process does, however, pose special problems in countries where several traditional family law systems based on ethnic or religious affiliation continue to exist side by side. On the one hand, pluralism of personal status and family law systems, even if they were modernized, is viewed as an obstacle to the process of national identification and integration. On the other hand, the retention of traditional systems is considered an important guarantee by ethnic or religious minorities, whether Copts in Egypt, Chinese in Malaysia, or Tamil in Ceylon. Unification and modernization of family law by reforms within the dominant traditional system—Islamic in the first two examples—would normally lead to a loss of identity which minorities do not willingly accept, especially where they consider themselves economically and culturally more advanced than the majority groups.

There is no easy or uniform solution to these highly political problems. Developing countries have chosen various methods of

modernization, ranging from Tunisia, where reforms closely followed Western models, to India, where secular family law was introduced as a separate system side by side with modernized Hindu and archaic Moslem law, to Egypt and Iraq, where serious attempts have been made in the new family law codes to adapt Islamic concepts to modern exigencies, to Lebanon and Israel where a variety of family law systems coexist without a special secular code which, as in India, can provide a link between religious communities. In all these instances, save for the last, there has been a demand for change, and the system has responded. Time will tell which of the different methods of innovation are functional and viable in their particular environment.

The Legal Profession

A third area in which pressures for change are particularly strong relates to the legal profession—bench, bar, lawyers in government, business and universities.

Much has been said about the conservatism of the legal profession, and on its declining role since independence. Some countries—Ceylon, Japan and Korea—have a very small legal profession. In Indonesia and most African countries there were almost no lawyers at the time of independence. In others, e.g., India, the legal profession played a key role in the struggle for independence, and it remains numerically very important, though the quality has been declining. The one common feature of most of these countries is a system of legal education which often provides nothing more than two or three additional years of general schooling for future civil servants, and in other instances is a minor adjunct to, or substitute for practical apprenticeship. Both types of schools have their origin in foreign models, in the French "Facultés de Droit" in the first case, and for the second in the law training in England. Both may prove inadequate for generating the desirable creative elements in the legal profession in developing countries where the lawyer, to be effective in the development process, must be more like an engineer, rather than a legal philosopher or a plumber.

The key to a dynamic legal profession must be better law-teaching, implying a reassessment of educational targets; appropriately qualified professional teachers; a functional curriculum; teaching methods and materials designed to involve students and expose them to law as a dynamic process; additional professional training, e.g., for judges; and a relevant selection process for admission to practice, avoiding extremes (e.g., the Korean pattern, where only 1 or 2 percent of the candidates pass the bar examination, or the Indian model, under which great numbers of law graduates are automatically admitted to law practice every year). Reform in this area has

been initiated in a number of developing countries, and is planned in others. It must, to be lasting, come from within each country, although outside assistance can be and has been valuable as long as it conforms to local needs and conditions.

Prognosis

The most encouraging sign for the future is the growing demand for law as an instrument of innovation, and for a legal order capable of playing a role in the process of development. Significantly, this applies not only to political systems based on evolutionary change: revolutionary objectives generally include a better, and more egalitarian legal order; once a new political system is created by revolution, new law is needed to legitimize it and to effectively establish its authority. Given this demand for law as an ingredient of the development process, and given some awareness of problems and priorities, there seems to be no reason why the nations of the third world should not find within themselves the resources to develop their legal systems creatively and in their own ways. This must also be a total process: modernization in special fields, e.g., investment laws or land reform, remains highly vulnerable if it is not related to a fundamental strengthening of the legal system.

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Lawyers and the Development Process

Sol M. Linowitz

[To realize the potential which law can offer in the development process, emphasis must be given to methods of educating and motivating lawyers who will be critical and willing to innovate, and will use their abilities in the public interest.]

Law is a marvelously flexible and effective tool for social engineering, for planning for the future and constructing the kind of world we want to live in. Law not only captures the experience of the past, but expresses a people's grand design, its aspirations and its route for realizing these goals.

The capacity of developing nations to realize these benefits from law varies greatly, however. In some areas, such as Latin America, there has long existed a highly developed legal structure and a large output of trained lawyers (an estimated 13.4 percent of university graduates get law degrees). Elsewhere, perhaps most clearly in the newly-independent nations of Africa, the legal structure may be weak and fragmentary. In economic terms both types of countries are referred to as "developing," but in legal terms some of them may suffer from overdevelopment, that is, from the rigidity which comes from having too many entrenched interests. These countries have in common, however, the need to utilize their legal systems more effectively in establishing institutions to further growth and development.

Mr. Linowitz, former United States Representative to the Organization of American States, now heads the Washington office of Coudert Brothers, an international law firm.

It has been said that economic development is not a panacea, but a disease. In fact, it creates many new problems, not least among which is the intense threat of political turmoil. Student unrest in Mexico and Brazil, and recent guerrilla movements are examples of social upheaval caused by changing economic conditions. In no country can the function of law and lawyers be considered in the abstract without regard to the socio-economic environment and the society's aims.

There is a general lack of qualified personnel which is quantitative and/or qualitative. It is not enough to have a small, highly trained elite: it is perfectly within the competence of many developing nations, for example, to devise and pass the best tax laws imaginable, but if there is not an adequate staff of auditors to inspect, lawyers to analyze, and a legal system properly geared to prosecute evaders, such laws are meaningless. Even where there is no shortage of lawyers, the attitudes and training of the profession often render it ineffective in undertaking the job of legal engineering. Too many Latin American lawyers, for example, tend to view the law as a static structure of rules and procedures rather than a creative device for progress; this minimizes their desire to take initiative in devising long-range reforms, and it also tends to frustrate such reforms as are proposed by others.

How do we translate the potential of the lawyer and of the legal profession into actual advancement of development? My reply is, first and top priority—the education of more lawyers better able to accomplish this. This applies both to the former colonial nations where the issue is quantity, and the developing nations of Latin America where improved quality is the pressing need. In this task, the primary focus must be the local law schools. I emphasize this strongly, as it is to local law schools that these nations must look for the legal talent in the quantity and with the knowledge necessary to promote national development. Solutions to a nation's development problems must be intensely relevant to that nation's particular history, culture, geography and religion. While I do not mean to denigrate the value of advanced study abroad to deepen perception of available options, I am convinced that the role of an Oxford or Harvard-trained lawyer in an underdeveloped area is chiefly that of a catalytic agent.

To some extent, I recognize, this proposal leads to a dilemma: the need for greater emphasis on legal education within the developing countries and at the same time the lack of trained lawyers for other purposes than teaching. The dilemma of scarce resources can only be met by encouraging all members of the local legal profession to pitch in at least on a part-time basis to do this job. Some of the most promising graduates, the dynamic young instructors,

must be recruited. In Latin American countries which have a strong nucleus of able lawyers, the task must also include finding ways to motivate them. Financing the schools and providing assistance to those who resume training in mid-career to learn new skills related to development tools should be considered. During this process, it is also essential that foreign-trained lawyers—including foreign nationals—continue to supplement local faculties.

Here are some specific suggestions:

First, it is essential that we in the United States become more familiar with the problems and potential of the developing societies. Comparative law courses and even special courses on development law in our own law schools could pay a great deal more attention to the study of the legal structure of the developing nations. We have much to learn before we can truly understand and assist the developing nations. American lawyers who work in this field must have a sensitivity to the concepts and objectives of the foreign legal structures.

Second, we must explore new ways by which developing nations can profitably apply the analytical process that has been developed so well in American legal education. The American experience, which educates young lawyers in a process of intelligent criticism of the law, may be adaptable and useful. This approach, I believe, has particular relevance to the development of the attitudes of what I call the legal engineers who can take constructive leadership in surveying the nation's problems and mapping out a way to eliminate them. In too many areas, particularly in the civil law courses, legal education is confined to abstract lectures about the existing rules, and the student's function is simply to memorize. This static method produces a breed of lawyers that is backward-looking rather than innovative. Whatever means may be adopted to foster this questioning attitude, this critical analysis of what exists, it is important that they be experimented with in the emerging nations.

In applying this pragmatic approach, some of the former colonial nations have a particular problem. Cases and precedent are not in abundance, and in any event do not provide fertile material for the kind of future development problems they will meet. There is, moreover, a lack of exposure of the young law student to the problems of dealing with modern economic relationships. He is likely to be unaware of the workings of even relatively simple business or governmental operations. Before we can expect him to tackle the problems of development through the analytical problem-solving method to which I am referring, he must be made familiar with the practical realities of modern economic relationships.

Perhaps new techniques should be sought as supplements or alternatives to using cases as our raw material. Practical experience can, in many instances, be substituted for the analysis of cases, e.g., in field research projects, exposure to current unsolved problems by introducing students to actual clients, coordination with practicing lawyers and businessmen, and part-time service in government ministries and business enterprises. These type of experience could, if properly directed, provide the same kind of training as case analysis and, at the same time, can give the student practical and socially useful experience.

Properly organized, law schools can constitute an important source for long-range objective analysis for national goals and ethics. Individually and collectively, faculty members should regard it as a primary responsibility that they study the existing socio-economic structure with an eye to promoting improvements in it. Law journals should be used for practical analysis of development issues and possibly as a primary source of blueprints for national reassessment and progress.

In addition, law schools can make important contributions by sponsoring the publication of the decisions of the nation's courts, by compiling comprehensive collections of the otherwise inaccessible legislation and administrative rules, by preparing commentaries of what the law is. Responsible, long-range analysis and planning, whether of legal structures or of business judgments, can only be undertaken where there is widespread access to contemporary legal materials, so that people will know at least what the status quo is.

The preceding proposals about educating a new generation of lawyers to realize the ultimate potential for law in the development process will take some time to implement, because of the inevitable "lead time" in establishing the kind of law school curriculum I have discussed, and then in realizing the impact on development after the graduates are placed. Attention must also be paid to the role of the existing legal profession in the development process. We must try to involve and motivate the entire profession—including the lawyers and judges. While we may be placing a back-breaking burden on the strained resources of the struggling law schools, the dividends can be great. Strengthened Bar Associations, courses for practicing lawyers and judges in cooperation with the Bar Association, continuing legal education programs, or at least special forums could help reorient those who have much to offer and motivate them to exercise critical, dynamic leadership. With this done, the bar can emerge as what I believe it should be, a "public interest" lobby, serving in the dual capacity of protecting the people and promoting legislation in the public interest, and in turn educating the people about the rights and responsibilities of citizenship in a free society.

Because of an insufficient number of lawyers in some countries and inadequate preparation in others, national planning has been taken over by politicians and economists. It is unfortunate that this creative role is often perceived only by the economists. With properly trained lawyers inside and outside the formal bureaucracy, the institutions of development can be more effective. Properly drafted legislation can anticipate problems, find more equitable solutions, make more effective adjustments and transitions from current problems in the process of change.

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Potpourri of Speculations on Law and Development

Tom J. Farer

[The author undertakes, in an exploratory spirit, to question some widely accepted ideas on law and development and to propose new possibilities.]

Law in its relation to economic development has become a modish subject. Despite spreading enthusiasm, however, parts of this subject area are about as well charted as the interior of Africa in the 18th century. Until very recently scholarly concern settled on the intellectual coastline of international law and international institutions which affect trade, aid and investment. Trade preferences, regional economic arrangements, commodity agreements, the law of expropriation, economic development contracts, and procedures for the settlement of investment disputes all have received substantial treatment in the burgeoning literature and are increasingly included in the curriculum of law schools.

The acceptance, at least in the United States, of lawyers as central participants in the transnational processes affecting third-world development may have shaped, and distorted in some measure, the perceptions of the non-legal participants. The lawyer may be inclined to seek justification for his omnipresence and to grasp the legal tail of a financial or political problem and shake it fiercely until all eyes shift from the head and body to the agitated rear extremity. As a result, legal aspects may take on more importance than they would have on strictly economic merit.

Mr. Farer is an Associate Professor
of Law at Columbia University,
New York.

One possible instance of this tendency is the energy expended in the struggle to shape the international law of expropriation, remarkable in terms of the limited value of alien property actually expropriated by less developed countries. My impression is that potential investors are more concerned about this contingency than the precedents warrant, partly due to the legal profession's untiring interest in the problem. Another carefully mapped area is that of domestic laws designed to encourage foreign investment, i. e., investment incentive statutes. There is quite some doubt about the relevance of these efforts to the main, gritty problem of encouraging an accelerated flow of investment funds to the less developed countries. One highly-regarded study of foreign investment decisions suggests that neither investment incentive laws nor, for that manner, any other facet of the legal structure appears to affect entrepreneurial calculations: investors' concern does not appear to reach beyond market size and political risk. However, the continued attention given to incentive statutes by the legal profession may be causing them to become a growing element in the competition between countries to attract investment.

Domestic Law and Development

The relatively unexplored sector of law and economic development is the impact of domestic law on locally generated economic activity. In theory, at least, there should be important differences between the interaction of law and economic growth in technologically advanced Western states and in less developed countries. In the former, most substantive law is shaped by well-organized and informed interest groups, and it can be said to play a relatively passive role. It is not part of an elitist strategy to create new social and economic patterns; rather it mirrors the processes at work beneath the political level. In some less developed countries, on the other hand, a law will frequently antedate the economic phenomenon to which it applies. This is so because there is a political class with a considerable degree of autonomy in policy selection. In such societies the opportunities for the purposive use of law to promote economic growth should prove greater than in the West.

The Virtues of Predictability

One function of law in the West which is frequently assumed to have a positive impact on economic growth is its enhancement of predictability in economic relations. Law enhances predictability both by clarifying the theoretical consequences of a given act and by specifying the means for assuring that those consequences actually occur. For instance, in each of our states law both defines the measure of damages for breach of contract and the procedures for compelling payment of those damages in case of breach.

Predictability is deemed relevant to economic growth on the basis of an assumed positive relationship between it and the inclination to save and invest. However, where the elite is hostile to entrepreneurship generally or to a particular class of entrepreneurs, there probably is an inverse relationship between entrepreneurial activity and predictability defined in terms of formally promulgated rules. To put it crudely, corruption may be the required handmaiden for economic growth. As Professor Nye of Harvard pointed out recently, "In East Africa, for instance, corruption may be prolonging the effective life of an important economic asset—the Asian minority entrepreneur—beyond what political conditions would otherwise allow."

In states where the governing elites are sympathetic to entrepreneurial activity, on the other hand, one can develop a compelling theoretical case for a positive predictability-growth relationship: the greater the predictability that the postponement of consumption will permit substantially increased consumption in the future, the greater, in some degree, will be the propensity to save. Similarly, the inclination to invest savings in capital-enhancing ventures should vary with the predictability of profit. But is this consistent with the sparse historical evidence? For example, was the level of capital formulation in the United States during the post-Civil War sprint to economic pre-eminence adversely affected by the rampant disregard of fiduciary obligation, even where such obligations were deemed to exist? Perhaps the economy would have grown even faster if savers could have invested their funds with less fear of being victimized. On the other hand, perhaps the era's entrepreneurial fervor was heightened by the sense that means both fair and foul were available for the pursuit of profit to all men of energy and imagination.

As development proceeds, however, and as business ventures grow in size and complexity and the risk-taking traders give way to industrial enterprises with longer time horizons and larger stakes, the importance of predictability increases very considerably. But the question then arises as to whether law per se has much to do with those predictabilities.

To illustrate: in country X there are no publicly owned corporations and there is a rudimentary general corporation law which does not impose fiduciary duties on controlling shareholders or management. Nor does the legal structure of country X contain any concept equivalent to the common law trustee with his fiduciary responsibilities. The government of X amends its Corporation Law and adopts a trust code which imposes fiduciary duties comparable to those found in laws of the State of New York. Is there any reason to believe that this action will hasten the appearance of publicly held corporations or a securities market? If its efficacy is measured by its impact on investor confidence, a negative answer would seem

inevitable unless one of the following conditions is met: 1) for cultural reasons, entrepreneurs respond positively to changes in the formal norms governing their behavior, or 2) trial procedures are reasonably expeditious, judges relatively incorruptible, and collection mechanisms normally effective, and resort to the Courts is a culturally accepted means for vindicating rights.

Both conditions are difficult to satisfy. In less developed countries, those likely to feel most liberated from general community norms are the entrepreneurs, and the prospect of vindication of rights through the courts is often bleak. Old communities in the processes of development, and their traditional codes of behavior, are usually in process of dissolution in confrontation with the new thrusting market economy. Whether or not entrepreneurs are members of an ethnic or religious minority, they tend to be unresponsive to older norms which inhibit their pursuit of profit. Their very participation in individual entrepreneurship evidences a break with the historical community. During the resulting moral interregnum, corruption flourishes.

Even if a state can create a cadre of highly professional and reasonably honest judges, can the meager human and material resources of the developing society provide adequate sheriffs, marshals, bailiffs, clerks, and the other essential participants in an effective judicial system? The critical word, of course, is system. Institutions and—more crucial—attitudes comparable to those of mature capitalist states are the key. Without these, law reform efforts consisting only of additions to or subtractions from the body of formal law can have the impact of a pebble tossed into the sea.

Legal Tactics for an Elitist Strategy

In order to develop, whether by means of a free market or one dominated by the political apparatus, the technologically retarded states must revolutionize whole systems of thought and behavior. Law can be a useful instrument, one among several, for carrying out this revolution. And it is as one integrated element of a coordinated strategy of change that law will find its vocation in the third world.

Even though some measure of social dissolution is a necessary element in the adventure of modernization, dissolution can proceed to the point where the minimum conditions of order required for economic growth cannot be satisfied. The political edifice may collapse into anarchy or civil war. Law can serve as a vehicle for conveying to the surging, confused mass a new sense of who and where they are, and where they are going.

The elite's ultimate aspirations for the society can be announced and shared with the bulk of the population by the incorporation of those aspirations in a constitutional document. Immediate economic goals may be recorded in legislation implementing development plans. All this is valuable even though law's primary role may be educational or perhaps inspirational, rather than functioning in the normal way as the means through which social policies become social action. Some governments may simply lack the administrative means to translate innovative social policies rapidly into social action; but they can define the new relationships and collective hopes of the society, and then rely for the most part on private initiative.

Law in Mobilization Societies

Paradoxically, law is more important as a mechanism for translating policy into social action to the extent that states are governed by radical elites and become what Apter calls "mobilization societies." These polities are directed by a socio-economic philosophy which seeks to alter decisively the traditional structure of society. The political elite cannot, therefore, leave social change and economic growth to the play of diverse and invariably conflicting social forces; they must formulate and seek to implement a wide-ranging set of specific social policies. The more innovative the social policies, the greater the need for their articulation in legal form: 1) to endow the new policies with the maximum aura of legitimacy and permanence; 2) to assist administrative cadres by providing authoritative and detailed instructions; and 3) to provide a yardstick to the masses for measuring the propriety of orders from local officials. Although the bureaucrats of an ideologically-fired "mobilization society" are more likely to be faithful and zealous than their colleagues in *laissez-faire* societies, they also bear greater burdens because of the elite's commitment to dismantling traditional arrangements. They must struggle with the inertia and conventional wisdom of the governed; and, as the progeny of that same society, they may also have to struggle with themselves. Law could give them strength as well as sanction to keep on with these struggles.

Another potentially valuable, though usually unrecognized, function of law in a "mobilization society" is as a means for channeling information about the perceptions and preferences of the mass to the Presidential Palace. Such information becomes a scarce commodity in the single-minded one-party state. Ideally, the mass should be carried along as enthusiastic participants by means of education and moral suasion; but when the political channels for two-way communication have been monopolized by this educative suasion, the upward flow of critical data relating to the masses' subjectivities can decline to a useless, often deceptive trickle.

The government may then inadvertently pursue intolerable policies, and discover its error only after a collective distemper has assumed the shape of rebellion. In a one-party state, this danger can be reduced by strengthening the legal system and encouraging resort to it for the vindication of rights infringed by local officials of the Party or the State. Claims made through the legal system could provide the leadership with valuable information about the temper of the mass and the fealty and capability of the administrative apparatus without exposing it to political threats.

In practice, however, the sustained orderly condition which would make possible this rational employment of legal procedures is often lacking, due to the tensions aroused in the mobilization process and the resulting fears and compulsions engendered among the elite. Moreover, legal institutions and procedures may be associated in the minds of the elite more often with their (colonial) past than with their visions of the future.

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Safeguarding African Customary Law

Thierry Verhelst

[With independence, African states were confronted with the simultaneous application and administration of differing systems of law: law of European origin (British, French or Belgian), Islamic law, and the multiple varieties of African customary law. A few countries opted for the gradual elimination of customary law, but most of the new African states retained their customary laws while adapting them to the needs of rapid socio-economic development.]

Today, techniques are being sought for the modernization of the substance, the form, and the application of African customary law. Some countries, among which Tanzania is prominent, are seeking the unification of some or all customary laws into a single, national body of traditional law. Many countries are looking forward to the ultimate integration of either rules or principles of customary law with those of modern law. Senegal and Kenya have already made some progress in this field. The methods used to achieve modernization, unification, or integration include two major types of approach: 1) judicial interpretation; and 2) legislation limiting, reshaping, or validating customary law, in some cases in conjunction with programs for the codification and "restatement" of existing customary laws.

Judicial Interpretation

The history of the English common law is a source of inspiration to many who are concerned with customary law in Africa. Originally faced with a large variety of different local laws, the King's courts were

Dr. Verhelst is with the Faculty of Law, Haile Sellassie I University, Addis Ababa, Ethiopia.

able to develop a body of law common to all of England. The common law system has also shown a remarkable ability to adapt and develop this body of law throughout history to meet changing socioeconomic conditions.

Reliance on the courts to achieve the required change in the law may prove more successful in some African countries than reliance on the legislature. People in the countryside cling to their customs, and many may resent infringements on their laws brought about by legislation in the distant capital city. And yet, the common law system may be inappropriate to the African states committed to speedy modernization. Gradual evolution of the law in the courts may prove too slow a process.

Countries that have entrusted the fate of their customary law to their courts face certain problems. Should the court system be left in the condition in which it was found at the date of independence with two sets of courts, allowing both received and customary law to develop in independent lines? Or should court structure now be unified into one single judiciary? No doubt the adjudication of both customary and "modern" law by a single court system will result in more rapid and thorough modernization of customary law and make possible its ultimate integration with the general law. Where a dual system of courts is retained, however, mechanisms of appeal and review of judgments in customary cases can provide links between the two structures.

Dual or unified court systems. Some of the francophonic countries of West Africa have maintained the dualistic court structure. The most significant reform is the establishment of a supreme court at the top of their respective judicial systems, with the extension of their jurisdiction of review to all cases involving either modern or customary law. Upper Volta, Tchad, and the Central African Republic have now bridged the gap between the two systems at the very highest level of jurisdiction. Togo has provided for several more inter-relationships between its basically separated court systems.

The general policy in Nigeria has been to retain the dual legacy of the colonial administration, but the Western Region's court system was transformed from a strictly parallel to a slightly unified structure in 1957. The law eliminated the supervisory and review powers of administrative officers over customary courts, established channels of appeal to superior courts, and provided for the appearance of legal practitioners before top-grade customary courts. Thus, some links were established; yet the continued barring of professionally trained lawyers from most of the customary courts constitutes a significant barrier between customary and modern law. Customary law remains largely unwritten, judgments are more often than not unrecorded, and few appeals are made to higher courts.

The Congo (Kinshasa) has also retained a parallel judicial structure, but it has various techniques of control to check and, since independence, also to direct the operation of the customary courts. Overall control with regulatory and advisory powers lies with the prosecuting attorney. The judgments of customary courts are subject to review by appeal, revision, transfer, and nullification procedures.

The majority of former French and British African countries have now unified their court systems. Among the former, Niger, Mali, and the Ivory Coast have gone furthest: they have radically abolished all customary courts. The single concession made to customary law is to allow lay advisers to sit on the bench of some of the courts when they deal with matters of customary law. Senegal has also radically unified its court system. No special court is set apart for the adjudication of customary cases, but the jurisdiction of the justices of the peace in the lower courts is limited to minor cases in modern law, while it extends to all cases of customary law.

In Ghana, the judicial system has also been unified. "Native Courts" were abolished in 1960; at all levels the courts apply both general and customary law, as well as Islamic law. These various systems of law have all been integrated, by the constitution, into "the laws of Ghana." As in Senegal, the new local courts have more extensive jurisdiction in customary cases. Tanzania has completed a similarly radical unification process. By 1963, the courts of written law were replaced by a fully integrated three-tier system. At the lowest level are the Primary Courts, which have jurisdiction over cases of customary, Islamic, and modern law alike. The judges of these courts are joined by two lay advisers on customary law, whose advice, however, is not binding. The language of these courts is Swahili. The District Court, besides its regular appellate jurisdiction, has wide powers of supervision, inspection, and revision of Primary Court proceedings. From a District Court, appeal lies to the High Court.

Internal conflicts of law. Because of the concurrent application of two legal systems, conflict of law problems arise in which the solution necessarily involves the status of the parties concerned. Today the pre-independence definitions of status are either abolished or qualified by varying exceptions that generally tend to favor the application of modern over customary law.

In Tanzania, for example, the solution to the conflicts problem no longer depends upon the party's race, i. e., whether he is African or not. The connotation of separate or inferior status has been eradicated. The application of customary law depends upon the

party's membership in a particular community, whether traditional or modern. One may become a member of such a community by two methods: he may adopt its way of life, or the community may accept him as a member. Ghana, on the other hand, sought a solution to conflicts of law in a statute that directs the courts to apply modern law unless the affected party can establish the propriety of applying a personal law from the indigenous system.

Former French territories have inherited from the colonial administration a large set of rules enabling a person governed by the traditional laws to change over to the regime of written law. Senegal, for example, has retained this characteristic. After stating that those who were formerly governed by customary law may retain their status, the statute indicates several ways to resort to the application of the written law rather than to custom. Written law will be applied when the parties, although of traditional status, jointly so request. It will also become applicable if the parties have totally or partially rejected their traditional status, either tacitly (e.g., through use of a will with written formulas derived from statutory law) or expressly. If parties of both modern and traditional status become involved in a particular case, the customary law will prevail, provided the latter party has not rejected his status. Other francophonic states are governed by substantially the same rules. In Togo, however, the customary court is competent only when all parties agree to its jurisdiction; thus, the application of modern law is favored considerably.

Curtailing the application of customary laws. Three types of recent legislation have endeavored to limit the application of customary law in the courts.

First, some statutes have limited the application of customary law to certain fields of law, barring its general validity. Thus, customary law has been widely excluded from the domain of public law as a whole. It finds no place in such matters as constitutional and administrative law, nor, in some cases, in criminal law and procedure. It has been excluded from labor law, civil and commercial law, and contract and tort law. Let us take, as an example, a statute from Senegal, a country that plays a leading role in progressive law-making in Africa. Only the following may be governed by customary law: the capacity to draw contracts and to sue and be sued, the status of persons, family, divorce, filiation, succession, gifts and testaments, as well as ownership and possession of real estate and the rights that flow therefrom. Only written law is applicable in all other fields.

Secondly, the courts may be directed to apply only certain bodies of customary laws. For instance, in Tanzania, the courts must

apply only the customs that have been "restated," since these texts have statutory force (see below). Customary rules that have been excluded from the restatement must be ignored by the judiciary.

Thirdly, the courts themselves are given the opportunity to restrict the application of a rule of customary law. This technique had already been used by the courts under colonial rule to eradicate objectionable elements from the customary laws. In Nigeria, the judge is still directed (as before, there and in other parts of British Africa) to deny enforceability to any rule of customary law that would be "repugnant to natural justice, equity and good conscience." The repugnancy clause, however, has been dropped in Tanzania and Ghana. In Senegal, the ordinance previously mentioned stipulates that customary laws are subject to the "fundamental rules concerning public order and the liberty of persons." In Madagascar, the judges are required by statute to ensure respect for the general principles contained in the preamble of the constitution.

The Constitution of the Congo (Kinshasa) provides specific guidance as to some of the principles with which customary laws must come into accord, e.g., certain fundamental principles regarding the liberty of choice by future spouses concerning their marriage (indicating that the fathers of the Constitution intended to herald the western-type, "nuclear" family). Thus, even though the Constitution does not impose particular rules with regard to marriage, courts are afforded a means to restrict customs in some cases, to redirect them in other cases, and to abolish them when necessary. The new Congolese judge is given a creative role akin to that of his Anglo-American colleagues.

Rules of ascertainment of customary law. Ghana and Tanzania have done away with the former system in which customary law was put on an inferior level among the sources of law, and where a rule of customary law was regarded as a question of fact which had to be established by proof. This proof is still required in Nigeria, where customary assessors advise the judge who is not bound by their opinions. Only if the same rule of law has been acted upon by a superior court, or has frequently been before the same court, can the judge take judicial notice of it.

The new Ghanaian legislation, however, states that the question of the content or existence of a rule of customary law is a question of law for the court and not a question of fact. The court may now determine the applicable customary rule from its own knowledge or assumed knowledge. It must have judicial notice of customary law as it does of any other of the laws of Ghana. If the court entertains a doubt as to the existence or content of a rule of customary law, it may conduct investigations; the methods of investigation are left

very much to the court's discretion. In Ghana, as in England, the judges are the "depositories of the laws, the living oracles who must decide in all cases of doubt" (Blackstone, Commentaries).

Silence or uncertainty in customary law has been expressly dealt with in a number of francophonic states. The legislature in Senegal and Niger, and the head of the Judiciary in East Cameroon, have provided that in such cases the judges must refer themselves to written law. Statutes and regulations are to be used as secondary sources of law in customary matters.

What is the future of customary law with all these reforms in judicial structure, competence, and rules of ascertainment? It is too early to give a comprehensive answer, but there is little doubt that the reforms in the new African states will lead to a more or less rapid adaptation of customary law, with an infusion into its rules and principles of western-type laws and legal doctrines. This infusion may be good or bad, but that it will occur is certain, now that professionally trained lawyers are called upon to play a role in the adjudication of the custom.

Legislation, Codification and the Restatements

In addition to legislation on the scope of customary law, there are by-laws, authoritative declarations by tribal authorities, statutes, codes, and restatements which deal with the content of customs and their transformation.

Statutory amendments to customary rules of law. The most elementary way in which legislation affects customary law is by simply pruning off some of its rules. This is a way of attuning the morality of customary law to that of a new age. In this fashion, trials by ordeal, and slavery, were abolished by statute.

At present, similar piecemeal legislation is often resorted to. Many states have chosen to retain the customs of the various ethnic groups rather than make drastic changes that might have resulted in fierce opposition and ultimate failure, but they have amended provisions of customary law that are considered either evil or archaic. Bride-price, one of the most delicate problems of the law of marriage, has been subjected to important reforms. Greedy parents frequently demand very high prices for their daughters. The result in some places has been that young people do not marry, a circumstance which facilitates polygamy among rich, old men. Mali has set by statute a maximum on the amount of bride-price that may be paid, and Gabon and the Central African Republic have abolished bride-price by law.

Another delicate problem is polygamy, which the French attempted to deal with in a way that has been retained in the law of some countries after they achieved independence. A 1951 law provided for the possibility of a contract whereby the future husband promises to remain monogamous; he could be prosecuted under the criminal law if he failed to live up to his contract. Mali has this regulation in its new code on marriage and custody. French legislation had also stipulated that he who was married under customary law was prohibited, under penalty of prosecution for polygamy under the French penal code, from entering a marriage under written law until dissolution of the customary marriage or marriages. This regulation has been retained by Mauritania, the Ivory Coast, Upper Volta, Togo, East Cameroon, Congo (Brazzaville) and Tchad. In Mali, polyandry is forbidden to women, whereas men are not allowed to have more than four wives. Polygamy has been altogether abolished in the Ivory Coast and the Central African Republic.

Customary land law has been retained in many countries but provisions have been enacted to offset some of its economically harmful effects. The Western Region of Nigeria has enacted a law that vests in trustees certain customary rights in land. Under customary law, the chief is merely an executive of the family (or other landholding group) and he cannot alienate land without the express authorization of all members of the family. This procedure may involve several hundreds of persons. In order to facilitate and encourage the sale and conveyance of land, the Communal Land Rights Law provides that a limited number of executive heads of family may be recognized in law as the trustees of the group. The trustees have power to alienate or otherwise dispose of the land without the express consent of all the members of the landholding unit. Wide use is reported to have been made of this legislation.

In the registration of plots of land, various statutory provisions have been designed to give more certainty to landowning individuals or groups who remain governed by customary law. The French administration finally made allowance for registering customary interests of land as such; not only individual customary rights but also collective customary rights in land received formal recognition in the land-registries. After independence, most of the countries of former French Africa retained this statute.

Legislation by traditional authorities. Under the British system of indirect rule local "native" authorities were empowered to declare in writing the native law and custom—whether in the then existing or modified form—relating to any subject. This declaration would then be sanctioned by the governor. This was devised to eradicate particularly harmful uncertainties in the customary laws. The power to declare and modify customary law was retained in Western Nigeria and conferred on local government councils.

In the same manner, Ghana has entrusted to its traditional chiefs a role in the legislative adaptation of customary law. The 1961 Chieftaincy Act commits to the chiefs, subject to the ultimate discretion of the executive, the task of deciding what customary law should be assimilated into the common law. Chiefs of various regions meet in a joint committee to consider whether a customary rule of law should be so assimilated. A draft is submitted to the competent minister who may effect the assimilation. A rule of customary law that has been assimilated by the common law takes precedence over customary law that has not.

Unification of customary law. "Restatement" of customary law has various meanings in Africa. It may merely record existing rules as they are found in one or more groups, without having ironed out existing variations. On the other hand, the restatement may purport to unify the various customary rules into one or several national bodies of customary law, accompanied by a series of reforms in the custom. Finally, the restatement might be the object of statutory enactment, whereby it then becomes a code. An intense movement for the recording, unification, and codification of customary law is found in East Africa, especially in Tanzania, Kenya, Zambia, and Malawi; such schemes also exist in Botswana and Swaziland.

A project of recording and unifying the customary laws of all the peoples of Tanzania in a set of codes was launched after independence, the boldest such project in Africa. The customary codes are formulated as follows:

1. Representatives from each tribal group, selected by the District Council of the area concerned, are convened to discuss a particular topic of law. After discussing and composing their differences, the representatives attempt to find agreement on a particular text. New rules are formulated to deal with changing conditions, and antiquated rules are abolished.
2. When all the tribal groups of one region have accepted one unified version, the text is submitted to a "panel of Experts," consisting mainly of members of the National Assembly of the region concerned. Suggestions are then made.
3. Final ratification lies with the District Council.
4. An Ordinance of Declaration provides for the publication of the unified version, giving it statutory recognition. Thus the text becomes a code.

The restatement not only thoroughly unifies various customs, it also introduces important changes and reforms (one may question the

adequacy of the term "restatement" to describe Tanzania's project). Flexible machinery for making adjustments and amendments to the Declaration Orders has been provided for at both the regional and the national levels. The unification project is considered to be a continuing experiment.

A development of major significance to the future of customary law is the Restatement of African Law Project, sponsored by the School of Oriental and African Studies (SOAS) of London. In 1959 a comprehensive project for the systematic recording and restatement of African customary law was begun. The project will eventually cover 16 countries in anglophonic Africa, encompassing the law of marriage, family, land tenure, and succession. The objective is the complete restatement in English of the principles of customary law recognized within each ethnic group. It is particularly in Kenya that the project has made progress.

The Kenyan and Tanzanian projects have much in common, yet they differ in at least four important ways. First, the Tanzania project is intended to produce a unified version of customary law for the whole country, whereas in Kenya each group is entitled to have its own body of laws recorded separately. Secondly, the restatement of the law is to become a code in Tanzania, while the civil customary law of Kenya is not to be codified. Thirdly, Tanzania's project includes many reforms of custom, partly because of the unification process, but also because modernization of the custom is sought as an end in itself; Kenya does not emphasize the reformatory role of its restatements. Finally, while the Tanzania text is in Swahili, the Kenya texts are written in English.

Integration of rules of customary law into written law. Legislation is often intended to displace the customary law that preceded it. Thus the enactment of a code of criminal law may be combined with a provision stipulating that no customary offenses will henceforth be recognized. In the Ivory Coast, the unification of the civil law through the enactment of a series of statutes was accompanied by a radical suppression of the authority of the displaced law.

Some of the statutes, however, indicate that the legislators have simply transposed some of the rules of existing customary law into written law, thus giving them statutory authority. We find in the modern and western-oriented code of civil and commercial obligations of Senegal some rules that are customary both in origin and in spirit. The commission on codification of the law of persons and obligations of Senegal actually started to record customary law, mainly in the preparation of the code of persons (not yet enacted because of local Moslem opposition) and of the special contracts section of the code of obligations. Thus, the obligations of the navetane

contract, formerly a matter of customary law only, have been codified. Navetanes are agricultural workers who come from neighboring countries to help with the cultivation of groundnuts. Arriving well in advance of the harvest season, they receive from the landlord a plot of land to cultivate and a supply of seeds to plant, and they are entitled to retain the fruits of their labor. In consideration, they must pay for the seeds and help with the groundnut harvest of the landlord. This widespread institution still retains considerable economic and social significance in Senegal.

Another country that has entered the African legal scene with a new civil code is Ethiopia. The Ethiopian code is basically a body of western-type legal rules and institutions. It is claimed, however, and was stated by the Emperor in a prefatory note, that the code is in harmony with the customs as well as with the needs of the Ethiopian people. Although the code includes a general clause repealing all customary law otherwise applicable to matters covered by the code, there are various ways through which custom is allowed to remain applicable: 1) through the outright integration into the code of a rule of customary law; thus, the contract of betrothal is extensively treated. 2) The code makes some references to custom as the applicable law; for instance, marriages may be contracted before an officer of civil status, according to the religion of the parties, or to local custom, and when performed according to local custom customary law governs the formalities. 3) In the realm of land law, the code has an interesting series of provisions which allow tribes or villages to continue collective exploitation of their land according to their customary laws; these communities are given legal personality and are deemed the owners of the land that they occupy, yet they are not permitted to exercise all of the rights of ownership.

However, except for those cases where customary law is integrated or referred to, the Ethiopian Code is profoundly reformatory in nature. In fact, it is so modern, and in some cases so remote from the actual situation in the countryside, that the drafter himself has recognized that immediate and total application or enforcement is unlikely. The law embodied by the code thus represents a goal to be sought rather than a crystallization of social conditions that exist.

Integration of principles of customary law. There is a growing category of statutory law that has nothing in common with customary law and yet is indebted to it. The land reform act of Senegal is a foremost example of this. It celebrates the wedding of custom and African socialism. Other countries have enacted laws with similar principles.

The Senegalese statute creates a new legal entity, the National Domain, which is to include the entire territory of the republic except those few plots that have been registered in the land-registries as private property (no more than three percent of the territory). The Nation—that is, all the people of the past, the present, and the future—are entitled to that land. No private property can be acquired in the National Domain; the most one is entitled to is a right of usage. These rights are to be allotted by local communities to individuals or families according to their needs. The State has overall control over the proper use of the Domain and must see to it that it is used and improved according to the directions of the development plan. In the countryside, large areas of land are entrusted to designated rural communities in which a rural council administers the area according to the development plan and other official directions. The members of the council are elected by the rural community; technicians of the ministry of agriculture and of the local cooperatives are also members of the council ex officio. The major task of the rural council is to allot plots of land to individuals according to their needs and their ability to work the land productively. For the first allocation, preference is given to present occupants provided they have previously used their land beneficially. The undisturbed occupancy of the plots is guaranteed on condition that the occupant works according to the directives he is given. If he does not, the council is empowered to take the plot away from him and allot it to someone else.

Although an entirely new system with pervasive modernizing elements has been established, its underlying principles find their origin in customary law. This customary land law recognizes no private appropriation of land; land is a gift of the gods, occupied communally. The National Domain is no more than the embodiment in modern legal language of these traditional rules. Under customary law, plots were allocated by the chief to the members of the group according to their needs, and the allottee's right of usage was guaranteed by the group so long as he worked his plot. The same principles are incorporated into the new system, although greater emphasis is placed on the necessity of working the land beneficially in order to deserve its occupancy. Under traditional law there was a democratic decision-making process within the group; the new system retains this element by providing for an elected council. The council itself is the successor of the age-old council of elders that used to decide questions of collective interest, such as those concerning land use. Yet modern needs are served by the inclusion of agronomists and state officials on the council.

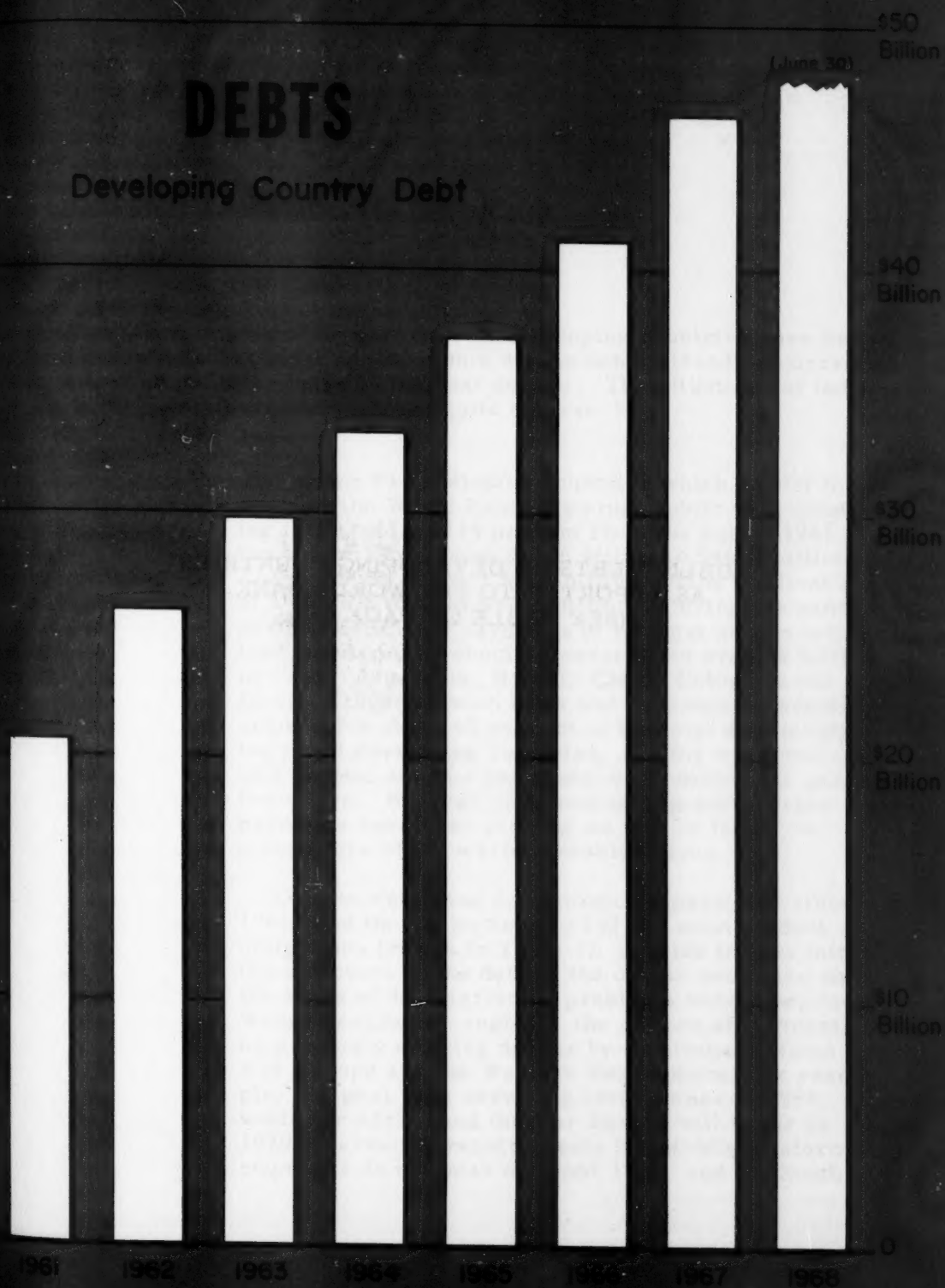
Many other countries have enacted statutes with similar principles. Thus, there is a Patrimoine collectif national in East Cameroon, while in Guinea there is mention of the Patrimoine domanial

des citoyens guinéens; other legislation in this country implies that the land has no mercantile value. In Northern Nigeria almost all of the land is declared to be native land. It can be subjected only to occupancy rights and is held and administered for the use and common benefit of the natives, i. e., persons whose fathers were members of any tribe indigenous to Northern Nigeria. A right of occupancy may be revoked by reason of abandonment or non-use of the land for a period of two years. A 1963 act of Tanzania vests all land in the President. It converts all freehold lands (remnants of the German administration) into government leaseholds; improperly used land is taken away from the occupant and allotted to another. This obligation of personal and beneficial exploitation of one's plot, which is part of a God-given communal holding, is incorporated in the modern statutory law of many West African countries—Mauritania, Mali, and Upper Volta, to name only a few.

[Condensed from Safeguarding African Customary Law: Judicial and Legislative Processes for its Adaptation and Integration. Los Angeles: African Studies Center, University of California, Occasional Paper No. 7, 1968, pp. 1-30.]

DEBTS

Developing Country Debt



**PUBLIC DEBTS OF DEVELOPING COUNTRIES
AS REPORTED TO THE WORLD BANK.
(SEE TABLE ON PAGE 96)**

External Debt and Its Servicing

World Bank and International
Development Association

[Debts and debt service payments of developing countries have been increasing substantially. Payments due on debts already incurred will continue to be large in the next decade. The situations of individual countries, however, are quite diverse.]

For the 79 developing countries which report their debts to the World Bank, external public debt outstanding increased by 114 percent from the end of 1961 to the end of 1967, from \$21.6 billion to \$46.2 billion. They rose by another \$1.3 billion during the first half of 1968 to a total of \$47.5 billion. During the same period, estimated payments of interest and amortization increased by about 74 percent, to over \$4 billion in 1968. Argentina, Brazil, Chile, Colombia and Mexico, together with India and Pakistan, currently account for about 45 percent of the total debt outstanding in all developing countries, and for well over one half of total service payments made during the past few years. But both debt outstanding and service payments have been growing as fast or faster in other parts of the world, notably Africa.

Data on debts and debt servicing payments since 1961, and the projections to 1977 of existing debt obligations (shown in Table 1), provide insight into the structure of the debt of the debtor countries and the kinds of debt servicing problems which they face. Within geographic regions, the pattern of payments on presently existing debt is by no means uniform. For Europe and the Western Hemisphere, for example, the peak debt servicing level comes in 1968, while for Africa and the Far East it will occur in 1970. Servicing requirements for Middle Eastern countries do not peak out until 1971, and for South

**External Public Debts and Debt Service Payments
of 79 Developing Countries**
(in millions of U.S. dollars)

Table 1

	Total	Africa	South Europe ⁽¹⁾	East Asia	Middle East	South Asia ⁽²⁾	Western Hemisphere ⁽³⁾
Debt Outstanding							
(Dec. 31) 1961	21,587	3,309	2,261	2,176	1,419	3,600	8,822
1962	25,942	4,024	2,478	2,812	1,667	4,736	10,207
1963	29,713	4,971	2,912	3,235	1,708	5,923	10,964
1964	33,175	5,517	3,433	3,744	1,880	6,881	11,720
1965	37,065	6,618	4,051	3,906	2,446	7,837	12,207
1966	41,046	7,379	4,441	4,395	2,740	9,196	12,895
1967	46,199	8,038	4,903	4,988	3,631	10,118	14,521
(June 30) 1968	47,542	7,952	5,118	5,630	3,643	10,444	14,754
Actual Debt Service Payments							
1961	2,314	172	252	224	170	246	1,250
1962	2,585	225	222	264	210	227	1,437
1963	2,749	494	265	165	188	269	1,368
1964	3,177	433	330	171	212	359	1,672
1965	3,279	445	407	206	182	347	1,692
1966	3,781	463	444	341	200	417	1,916
1967	3,969	535	461	280	168	486	2,039
Estimated Service Payments Due on Existing Debts of December 31, 1967							
1968	4,439	638	514	444	274	562	2,008
1969	4,501	723	501	436	375	612	1,854
1970	4,356	791	479	445	371	616	1,655
1971	3,985	691	443	427	377	621	1,427
1972	3,754	647	415	402	371	624	1,295
1973	3,346	601	362	370	344	618	1,051
1974	3,079	566	319	338	314	604	938
1975	2,796	502	266	323	263	605	837
1976	2,512	366	242	324	265	560	755
1977	2,296	337	220	302	236	537	664

Source: World Bank. Service payments include payments of principal and interest.

(1) Private Yugoslav debts included in actual values but not in payments due.

(2) Excludes suppliers' credits of India.

(3) Includes private debts of Brazil.

those of other regions, they face different debt management problems. The relatively heavy dependence of some of the Western Hemisphere countries on short-term lending, chiefly export credits, contrasts with the concentration of long-term loans received by other countries, notably South Asia.

The fact that debt service payments for the developing countries as a whole have not increased as fast as total debt outstanding since 1961, and most noticeably since 1965, is due in part to improvements in the terms of lending which have taken place during the period. It is also, however, a reflection of the increasing pace of international debt relief operations. Since 1956, when the first major post-World War II debt consolidation agreement was arranged for Argentina, almost \$3 billion of external debt of the developing countries has been rescheduled. Almost half this amount of rescheduling has taken place within the past four years. Debt relief operations have been partly of an emergency character; but partly they have been a means of improving the terms of aid, and providing greater flexibility in the use of resources transferred to the developing countries.

One of the elements considered when assessing a country's debt position is the debt service ratio: the ratio of amortization and

Asia until 1972. For the latter two, obligations in 1977 are almost as large as in 1968.

It is, of course, dangerous to generalize on the basis of regional data. Nevertheless, these figures suggest that, because the major countries of some regions have enjoyed softer terms of lending during recent years than

interest payments to the value of exports of goods and services and factor income from abroad. A low debt service ratio does not necessarily imply a high credit rating; it may simply be due to a low level of outstanding debt, and the country's economic performance and growth prospects may indeed be poor. Conversely, a relatively high debt service ratio may not be particularly serious if the country is investing in highly productive projects, and if exports are rising and continued growth in export earnings is likely. Table 2 illustrates

Service Payments on External Official Debt as Percentage of Exports of Goods and Services

Table 2

Country	1961	1962	1963	1964	1965	1966	1967	1968
Africa								
Burundi	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	3.7 ⁽¹⁾
Ethiopia	7.8	3.4	5.8	5.0	4.8	6.1	8.5	9.0
Kenya	n.a.	n.a.	3.9	9.1	4.4	4.8	5.5	n.a.
Malagasy Republic	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	5.0 ⁽¹⁾
Malawi	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	5.9	8.3 ⁽¹⁾
Mali	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	18.9	29.6 ⁽¹⁾
Morocco	n.a.	2.0	n.a.	3.0	4.9	7.4	7.5	12.8 ⁽¹⁾
Nigeria	0.9	1.9	3.0	2.7	2.8	4.8	3.4	6.6
Sierra Leone	n.a.	n.a.	2.1	5.0	5.3	6.6	8.6	7.8 ⁽¹⁾
Sudan	n.a.	n.a.	n.a.	n.a.	5.7	6.5	5.5	7.4
Tanzania	2.4	2.1	2.1	2.1	2.5	2.4	3.7	n.a.
Tunisia	n.a.	n.a.	14.3	9.7	7.4	14.0	20.1	32.0 ⁽¹⁾
Zambia	n.a.	n.a.	n.a.	n.a.	4.2	2.1	2.3	n.a.
Southern Europe								
Cyprus	n.a.	n.a.	1.7	1.9	1.4	1.4	2.2	n.a.
Greece	n.a.	n.a.	n.a.	3.1	3.9	4.7	5.7	5.1
Malta	n.a.	n.a.	n.a.	0.3	0.9	0.8	1.1	n.a.
Spain	n.a.	n.a.	2.5	2.0	2.0	1.6	1.5	4.5 ⁽¹⁾
Turkey	n.a.	n.a.	14.7	20.2	13.1	11.5	14.1	14.9
Yugoslavia	n.a.	n.a.	16.3 ⁽¹⁾	16.3 ⁽¹⁾	21.9 ⁽¹⁾	21.8 ⁽¹⁾	20.0 ⁽¹⁾	21.0 ⁽¹⁾
East Asia								
China	3.4	4.8	3.5	2.2	2.9	3.6	3.2	4.2 ⁽¹⁾
Korea	n.a.	n.a.	2.9	2.5	2.2	2.6	4.4	5.1
Malaysia	n.a.	n.a.	n.a.	1.3	1.2	1.4	2.1	n.a.
Philippines	7.5	4.0	3.2	2.8	5.3	6.3	7.2	5.2
Singapore	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.2
Thailand	2.9	3.0	2.9	3.2	3.2	2.9	3.7	3.1
Middle East								
Iran	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	6.8
Iraq	n.a.	n.a.	n.a.	n.a.	n.a.	0.8	0.7	n.a.
Israel	n.a.	22.5	21.6	22.4	14.9	14.1	9.0	17.5 ⁽¹⁾
Jordan	n.a.	n.a.	0.5	0.6	1.0	1.3	n.a.	1.8
South Asia								
Ceylon	n.a.	n.a.	1.4	1.5	1.9	2.6	3.8	n.a.
India ⁽²⁾	12.6	10.7	9.8	15.2	13.2	16.3	18.5 ⁽¹⁾	21.6 ⁽¹⁾
Pakistan	5.5	6.4	10.7	9.7	10.5	12.4	16.6	18.8 ⁽¹⁾
Western Hemisphere								
Argentina	n.a.	n.a.	n.a.	24.4	20.3	25.3	26.6	26.4
Bolivia	n.a.	n.a.	n.a.	n.a.	n.a.	5.6	5.8	n.a.
Brazil	n.a.	n.a.	26.3	24.6	22.8	24.7	30.4	20.3
Chile	22.6	22.2	17.7	17.9	16.0	11.5	14.2	n.a.
Colombia	n.a.	n.a.	n.a.	n.a.	14.4	16.6	14.0	n.a.
Costa Rica	5.2	8.2	8.8	7.5	8.3	10.3	10.3	11.5
Dominican Republic	n.a.	n.a.	0.3	2.7	16.6	12.2	7.4	8.0
Ecuador	8.7	9.2	8.6	6.9	6.1	7.0	6.2	n.a.
El Salvador	2.2	2.7	2.7	4.1	3.6	3.7	2.6	2.7
Guyana	3.4	3.4	3.8	4.1	4.1	3.8	4.1	n.a.
Honduras	3.9	2.7	2.8	2.9	2.5	2.1	2.0	n.a.
Jamaica	n.a.	n.a.	1.8	1.8	1.9	2.0	2.5	6.1 ⁽¹⁾
Mexico	14.4	19.3	17.0	23.9	24.6	21.6	21.6	21.2
Nicaragua	5.9	4.2	4.8	4.1	4.2	5.0	5.5	5.3
Panama	1.5	1.6	1.8	2.4	2.6	2.5	2.4	8.7 ⁽¹⁾
Paraguay	6.6	6.7	7.9	7.7	6.7	5.5	7.2	14.0 ⁽¹⁾
Peru	6.7	6.4	6.3	5.5	6.6	n.a.	n.a.	13.0 ⁽¹⁾
Trinidad and Tobago	n.a.	n.a.	n.a.	3.5	1.9	2.0	1.9	1.9 ⁽¹⁾
Uruguay	4.8	6.3	9.1	10.5	6.7	13.8	n.a.	30.4 ⁽¹⁾
Venezuela	4.3	4.7	3.4	2.8	1.7	2.6	1.9	8.9

n.a. Signifies that data are not available on debt service, export earnings, or both.

⁽¹⁾ Exports of goods only.

⁽²⁾ Debt service does not include suppliers' credits.

SOURCE: World Bank and IMF

developments in the debt service ratios of a number of developing countries since 1961.

Generalizations covering a number of countries would be misleading; the situation of each country is unique. India has the largest external public debt among developing countries. While debt service charges as a proportion of total outstanding debt (about 5 percent) are no higher than the average for all developing countries, they amount to about 18 percent of foreign exchange earnings, as compared with an average of less than 10 percent for all developing countries. Debt charges have increased steadily in relation to exports of goods and services since 1964. For Pakistan, debt service has increased by almost 80 percent in the last four years, as has the debt service ratio. Argentina's outstanding debt has increased only slightly since 1964, but debt service charges have grown by about 20 percent; during this period, the debt service ratio increased by 10 percent. Mexico's experience has been somewhat different. Although both outstanding debt and service payments have risen by about 60 percent since 1963, her debt service ratio has declined slightly since 1964. Both Argentina and Mexico have adopted economic policies which have enabled them to attract fairly large gross inflows of private direct investment and to roll over and gradually stretch out short-term credits. Chile and Israel, with high ratios in the early 1960s, have seen them decrease substantially as exports increased.

In the appraisal of debt servicing capacity by the Bank, the level and structure of existing and prospective external debt of a country on one side, and a projection of foreign exchange earnings on the other, are two main elements of analysis, but other factors are also taken into consideration. For example, the ability to transfer payments is governed in part by the extent to which a country's foreign exchange receipts are freely available, i. e., not tied to particular countries or specific projects, or limited by procurement conditions. A country's prospective ability and willingness to service debt are important factors when the decision to extend a credit is made. From an economic viewpoint, it may be regarded as an assessment of the long-term balance of payments implications of the country's development programs and policies. Thus, as in the development process itself, the assessment of a country's debt bearing capacity requires a longer-term perspective within which to consider the current situation and short-term outlook.

[Excerpted from "Trends and Outlook in Development and in Development Finance," World Bank International Development Association Annual Report 1969. Washington (D. C.): World Bank, 1969, Part Two, pp. 39-40. Available in French, Spanish, and German.]

Reflections on Aid and Indebtedness

Goran Ohlin

[This statement is the conclusion to a theoretical examination of mathematical models of lending and repayment flows under various loan terms, in which the key role of interest rates in building up future repayments is demonstrated. Continued lending at the present volume and on currently prevailing terms may prove to be an untenable method of development aid.]

Behind any discussion of the terms of development lending looms the question whether aid on loan terms is really an appropriate tool of development assistance. Is it practical or even feasible to cover such long term requirements by more or less concessionary lending?

It must first be recalled that nothing like this ever seems to have been done before. The vaunted golden age of foreign investment before 1913 did indeed see a long and sustained buildup of British and French overseas holdings, but investment income was, during the major part of this period, greater than net capital exports. The net flow of resources was thus a "reverse flow" to the great investing countries who ploughed back a part, but only a part, of their earnings in further investment. The contribution of foreign investment to economic growth in these circumstances may be considerable, especially if it serves as a vehicle of technology that is both modern and suited to the factor endowments of the borrowing country. But the effect on the balance of payments was to strengthen that of the European countries and put a strain on the others. Borrowing countries with

Dr. Ohlin is Professor of Economics
at the University of Uppsala,
Sweden.

export-dominated growth experienced no serious difficulty on this account, but others got into frequent difficulties and often defaulted.

The experience of Western foreign investment in the past seems to have little bearing on the problem of today. Development assistance today is rarely directed to countries with promising export sectors, awaiting development with the aid of foreign finance. On the contrary, export difficulties are often thought to be a more serious barrier to growth than their lack of capital.

The periods of outward net flow of funds before 1913 were generally short and limited to a burst over a few years. Nevertheless, these bursts sufficed to establish indebtedness positions that took a long time for borrowers to work off and in some cases were not worked off. If in this period Britain and France had actually invested abroad more than they received as investment income, their overseas claims would have grown to colossal levels at the end of the period. Today, it is assumed that the net flow of resources should be towards the borrowers over a fairly long period. Yet nobody wishes the developing countries to spend several generations repaying this debt later.

It is still widely thought that the terms of development loans might usefully be related to the profitability of the projects for which they are intended. But development assistance aims at a leverage, and it is hoped that rising incomes will increasingly be channeled into savings in capital formation until savings capacity is adequate to sustain desired growth rates. Now, if increments in output and income are tapped by repayment obligations, the only result is to retard this process or to give rise to corresponding needs for further foreign aid. If a country is to be furnished with the necessary amounts of development capital over a generation or more on hard terms, gross lending will rise to very high levels indeed and service charges will loom large in the balance of payments. If these charges are fixed, while further lending is at the discretion of donors, great uncertainty and precariousness is inevitable.

To what extent is a softening of terms sufficient to meet these intrinsic dangers of development lending on a big scale? Actually, the softening is likely to affect only a part of the capital imports of developing countries under present conditions. The rest would continue to be on fairly hard terms, whether the source is the World Bank, various export/import banks, or private credits. Few underdeveloped countries can be expected to avoid fairly serious problems if they continue to rely on foreign capital in the mix that has so far been available to them. If interest-free or virtually interest-free loans like those of the United Kingdom, Canada and the International Development Association, were to become universal, the

future outlook would be brighter. If one considers discount rates for future values, the economic cost to donors of further concessions at the soft end of the spectrum is rather small, as the present value of interest payments of 2 percent 30 years hence is negligible. To the future indebtedness of the borrowers and to the net flow of resources, such concessions would nevertheless matter much.

If terms of development loans cannot be softened drastically and universally, then one must probably look forward to an era of consolidation exercises, threats of default and eventually increasingly insistent demands for moratoria. Conceivably, a case may be made for loans which, in some distant future when take-off has been reached by some borrowers, are repaid in the form of assistance to those who then need it more. It is unlikely, however, that we shall see that day without first having been forced to drastic adjustments of those claims and obligations which are currently being amassed. The time may not be far away when a concerted effort has to be made to put development assistance not merely on a soft, but on a grant basis.

[Excerpted from "Concluding Reflexions, "
Aid and Indebtedness: The Relation be-
tween Aid Requirements, Terms of Assist-
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Debt Servicing and Foreign Assistance

Charles R. Frank, Jr. and
William R. Cline

[The large increase in foreign assistance to the less developed world has created a debt repayment problem which promises to become severe in the 1970s. Accelerating trends in debt obligations will require new approaches to the problem.]

Trends in Debt Rescheduling

In the last ten years, a number of countries experienced such severe difficulties in servicing their debt that they negotiated with creditors to postpone payments of interest or principal. In some cases these negotiations were preceded by a period in which arrears of payments occurred. There have been at least 20 cases of debt reschedulings over the last ten years for ten different countries, listed in Table 1.

The great majority of reschedulings have occurred in multilateral settings. Only Yugoslavia, Liberia and the United Arab Republic negotiated bilaterally with each major creditor. The Latin American reschedulings took place under the auspices of The Hague and Paris "Clubs," groups of creditors formed originally for the purpose of pooling non-convertible currencies. France was most often the major creditor. The Ghanaian negotiations were held in London with International Monetary Fund (IMF) sponsorship. The United Kingdom and the Federal Republic of Germany were the major Ghanaian creditors and virtually dictated the terms of debt rollover. The Turkey,

Dr. Frank is an Associate Professor of
Economics and International Affairs and
Dr. Cline is an Assistant Professor of
Economics at Princeton University, New Jersey.

Table 1: Debt Reschedulings Since 1957^{a/}

Country	Years during which Payments Deferred	Institutional Arrangement
Argentina	1957 ^{b/} 1961-62 1963-64 1965	Paris Club Paris Club Paris Club Paris Club
Brazil	1961-65 1964-65	The Hague Club The Hague Club
Chile	1965-66	Paris Club
Turkey	1958-63 1965-67 1968	OEEC Auspices OECD Donor Consortium OECD Donor Consortium
Indonesia	1966-67 1968 1969	Donor Consortium Donor Consortium Donor Consortium
India	1968	Donor Consortium under IBRD leadership
Ghana	1966-68 1969-70 1969-72	IMF Auspices IMF Auspices IMF Auspices
Peru	1968-69	United Kingdom sponsorship
Liberia	1963	Bilateral
United Arab Republic	1967-68 ^{b/}	Bilateral ^{c/}
Yugoslavia	1965-66	Bilateral

^{a/} A number of countries not included in this table rescheduled some very short-term debt (less than one year maturity).

^{b/} Dates of agreements to reschedule arrears.

^{c/} Rescheduled arrears with major creditors except the United States.

Indonesia, and India negotiations were conducted within the framework of consortia of the major aid-giving countries. In the India case, leadership in the negotiations came from the International Bank for Reconstruction and Development (IBRD).

The IMF played a significant role in nearly all of these reschedulings. Typically, the debtor received some IMF standby credits in conjunction with debt rollover. Acceptance of these implied an obligation on the part of the debtor to fulfill certain pledges with regard to monetary and fiscal policy. Frequently, the creditors have also required the debtor to limit its future borrowing on short-term commercial credit.

The Latin American and Ghanaian negotiations are most often described as "ad hoc informal meetings of the major creditors." The creditor countries in these negotiations have done their best to maintain the idea that debt relief is not an institution but a very serious and unique event whenever it occurs. The recent trend toward the use of consortia, which are also responsible for the pledging and coordination of the regular flows of financial aid, has resulted in the erosion of the ad hoc concept. India, Indonesia, and Turkey are now in a situation which promises periodic rescheduling meetings.

This difference in conception stems in part from differences in the structure of the debt. Many of the Latin American negotiations arose from difficulties encountered in servicing short- and medium-term commercial debt. The more recent phenomenon faced by consortia creditors is one in which long-term official lending forms a much more significant role in the debt-service burden. A rescheduling of payments over a one to five year period combined with some restrictions on the volume of commercial borrowing can significantly reduce the amount of debt service in the former case. In the long-term lending case, however, the debt must be rescheduled over a considerable period of time to have any significant impact on the debt-service burden. In the Indian case there was no balance-of-payments crisis but it was easily seen that the level of debt service was likely to cause problems in the future. The goal of the consortium-approved development program was the reduction of debt service to about 20 percent of exports. For India, this will require regular and increasing amounts of rescheduling for quite some time to come.

Amounts and terms of rescheduling. The amount of debt service rescheduled in the last decade has been considerable, approaching \$3 billion. A partial list is contained in Table 2. The moratoriums on payment of debt service are typically very short. In the earlier reschedulings, this reflected the ad hoc nature of the negotiations and the hope that the difficulties would be of short duration. In the cases of India, Indonesia, and Turkey, the shortness of the moratoriums may be a simple case of the reluctance to change traditional formulae but also may indicate a preference for repeated reschedulings to maintain control over the debtor countries' economic policies.

The terms have varied considerably. Table 2 also summarizes some recent experience. It is hard to find meaningful invocation of

Table 2: Amounts and Terms of Debt Reschedulings

Country	Year	Moratorium Length (years)	Grace Period (years)	Repayment Period (years)	Amount (\$ million)	Portion of Service Due (percent)	Interest Rate (percent)
India	1968	1	10	1	100	25 ^{a/}	0
Ghana	1966-68	2½	2½	8	170	80 ^{a/} , 2 ^{d/}	Bilateral ^{f/}
Turkey	1965-67	3	5	5	217	80/60 ^{b/} , 5 ^{c/} , 2 ^{d/}	0
Chile	1965-66	2	3	5	90	70 ^{b/} , 2 ^{d/}	Bilateral ^{f/}
Brazil	1964-65	2	3	5	190	70 ^{a/} , 2 ^{d/}	Bilateral ^{f/}
Argentina	1965	1	3	5	90	60 ^{b/} , 2 ^{d/}	Bilateral ^{f/}
Indonesia	1966-67	1½	3	8	350	100 ^{a/} , 2 ^{d/}	3

^{a/} Interest plus principal.^{b/} Principal only.^{c/} 60 percent commercial and 80 percent official debt^{d/} Excluding Eastern Bloc debt.^{e/} Excluding certain official credits.^{f/} Bilateral determination of rates.

general principles although the relatively soft terms for India and Turkey presumably reflect the long-run nature of their debt servicing problems. The traditional formula for negotiations is to decide at meetings attended by all creditors on the amounts to be rescheduled, the length of the moratorium, and the period of repayment. The consolidation interest rates typically differ from creditor to creditor, being determined on the basis of bilateral negotiations. Frequently, the results of these negotiations has been the use of a so-called commercial rate, often 5 or 6 percent, and at times higher than 8 percent.

Burden sharing. In the Anglo-Saxon legal tradition of bankruptcy and debt settlement each creditor is expected to absorb an equal burden in terms of the portion of total debt owed him which is not paid. On the international plane, there is often considerable disparity between the terms of different donors' lending, with the result that there has been a fair amount of concern over the appropriate shares of credits when a less developed country (LDC) needs help. The U.S. in particular, as a soft lender, has been in conflict with the hard-lending Europeans. Even though its share of the total rescheduling is usually small by any measure, the U.S. has been moderately successful in having long-term debt and interest excluded from reschedulings. Outside of this, however, justice has most often been equated with relief by each creditor of an equal percentage of the total amount due it.

The Indian case marks an important breakthrough. The IBRD devised a formula for determining the relief to be given by each creditor in such a way that the hard lenders would have to sacrifice more. It was decided how much India could afford to pay per year (around 20 percent of exports), and this was divided by total debt outstanding. This came to 6 percent. Every creditor was then to reschedule whatever service payments were over this limit. Countries under the limit (like the U.S.) had to make a certain minimum contribution to the rescheduling. It seems likely that this idea will be used more often in the future. If rescheduling comes to be considered more equivalent to aid, the criteria now being considered for distributing the aid burden, such as per capita income, may also enter the picture.

Causes of Debt-Servicing Problems

The immediate cause of rescheduling is usually a balance-of-payments crisis. The inability to pay interest and principal on debt outstanding is just one among a number of other indications of a lack of foreign exchange. In one sense, the ability to pay debt is limited only by the extent to which foreign exchange can be saved from a very strict curtailment of imports, and foreign exchange can be earned by exporting as much of the domestic product as can be sold abroad. When debt service is very large, however, the monetary, fiscal, tariff, and exchange rate policies required to restore international balance might result in extreme sacrifices and political difficulties which both the debtor and creditor countries might wish to avoid. Rescheduling of debt service is an alternative means of helping to alleviate a country's foreign exchange difficulties, which avoids some of the difficulties associated with more stringent economic policies in the debtor country. This is, of course, not the only means available, and debt rescheduling ought to be viewed in the context of other policy alternatives designed to meet foreign exchange shortages.

A high level of debt service presents its own special problems because, unlike payments for imports, debt service payments are fixed obligations which cannot be avoided without severe repercussions on the foreign balance for years to come. Imports can be reduced temporarily merely by applying appropriate restrictions on demand. When foreign exchange is more freely available restrictions can be lifted and the availability of imported goods will be affected very little. When a country defaults on its debt, however, the supply of capital in the future will be severely reduced. Without assurances of repayment, official and private creditors will not be very willing to lend. Only in the most extreme circumstances will a country be willing to default. The unattractiveness of default is considerably strengthened by the existing web of international

political relationships. A country with close economic and political ties to the United States or Britain might find default accompanied by a series of diplomatic and economic reprisals, e. g., cutting the sugar quota, limiting oil imports, elimination of Commonwealth preferences, etc. Thus the United Arab Republic, and Indonesia under Sukarno, found default with respect to the Western Powers attractive partly in view of their attenuated relationships with these countries.

The fixed nature of debt-service obligations has focused the attention of many analysts and experts on the debt-service ratio. This is defined as the ratio of service on debt to export earnings (earnings from services and invisibles may also be included, but are not in this paper). The rationale for the use of this ratio as an indicator of a country's debt-servicing capacity is that an increase in the debt-service ratio indicates increased vulnerability to foreign exchange crises. Any shortfall in foreign exchange earnings or capital imports which is not covered by exchange reserves must be met by reducing imports; since debt service is a fixed obligation, the higher the debt-service ratio, the greater is the relative burden on import reduction for a given shortfall in foreign exchange.

The debt-service ratio in and of itself is not a very good indicator of a country's ability or lack of ability to pay its debts; it is merely an indicator of the proportion of foreign exchange earnings which are free to purchase imports. If exchange earnings are high relative to import demand, a high debt-service ratio can be maintained. Furthermore, a country with good credit standing in international money markets may be able to finance a high debt-service ratio, for a time at least, through a high level of borrowing. The historical behavior of debt-service ratios and instances of default indicates an ability of some countries to tolerate high debt-service ratios. Mexico and Israel have not defaulted nor requested debt rescheduling despite debt-service ratios of 39 and 26 percent respectively in recent years. Australia managed to avoid defaults with a ratio ranging from 43 to 44 percent during 1930-34; Canada avoided defaults and the imposition of exchange restrictions on current transactions with a ratio of 32 to 37 percent over the 1931-33 period. (Note: these two ratios included private equity service along with debt service, and earnings from services along with exports.) On the other hand, Bolivia, Brazil, Colombia, Cuba, Peru, and Uruguay defaulted in the period 1931-33 with debt-service ratios that were generally lower, in the order of 16 to 28 percent. It is clear that there are a host of other factors which influence a country's ability to service debt.

In previous studies a number of indicators other than the debt-service ratio have been used as possible warning signals for debt-servicing difficulties. Among these are: the rate of growth of

exports; the variability of export earnings; "compressible" imports relative to non-compressible imports; per capita income; the rate of amortization (repayment of principal) of outstanding debt; the ratio of imports to the gross national product; and the level of exchange reserves relative to imports. One can make a number of arguments for the use of each of these indicators, some convincing and others not so convincing. In order to test these indicators for discriminating between countries which are likely to have debt-servicing problems and those which are not, a linear discriminant analysis was used. [Editor's note: readers wishing to know more about the statistical methods employed and to see more detailed results should consult the original.] The sample used combined cross-country and time series data; we chose the nine-year period 1960 to 1968, and included 26 countries, or theoretically 234 country-year observations; absence of data for specific years reduced these to 145. The data included 13 reschedulings in 8 countries; Argentina, Brazil, Chile, Ghana, India, Indonesia, Turkey, and the United Arab Republic.

We also found it useful to apply the usual linear regression tests to obtain some notion of the relative importance of the various variables. The most striking result of an eight-variable correlation was the dominance of only three variables: the debt-service ratio, the amortization/debt ratio and the imports/reserves ratio; only these were statistically significant at the 5 percent level. When only these three variables were included, the multiple correlation coefficient declined very little. The successes and errors in predictions of rescheduling are shown in Table 3. On the grounds that a low reserve ratio and a rescheduling negotiation are symptoms of the same thing, i. e., a balance-of-payments problem, the former was eliminated as a variable without much loss of predictive capacity.

Table 3: Correspondence between Linear Discriminant Functions and Actual Debt Reschedulings

	Number of Variables		
	Eight	Three	Two
Type I errors	3	3	1
Type II errors	15	14	17
Total errors	18	17	18
Total observations	145	145	145

Type I error = Predict non-rescheduling for rescheduling country-year.

Type II error = Predict rescheduling for non-rescheduling country-year.

Debt-Service Projections

A number of projections of debt service have been made by various organizations. All seem to indicate an alarming growth in interest and amortization payments. The existing debt projections, however, are not very useful for applying the composite indices computed above to identify potential rescheduling problems. Many of these projections are on a global basis and do not reveal individual country differences, and the few individual country projections available are not made on a consistent basis, differing greatly in methodology and assumptions.

To provide a set of consistent estimates for a reasonably large number of countries, we made projections based on 1967 data to the year 1977 for the following 17 countries:

Argentina	Peru	Bolivia	Mexico
Turkey	Korea	Dominican Republic	Indonesia
Chile	Iran	India	
Colombia	Nigeria	Pakistan	
Israel	Tunisia	Brazil	

Fifteen of these countries rank in the top 20 in terms of total foreign debt outstanding. Together they account for well over half of the total foreign assistance received in the last decade. Many of them have already experienced debt-servicing difficulties (Ghana and the United Arab Republic are not included for lack of data).

The foundation of the projections was IBRD estimates of service payments on external public debts falling due during 1967-92 on the basis of debt already outstanding at the beginning of 1967. Upon this foundation, we assumed new loan disbursements to these countries to occur (a) at the same gross rate, and (b) at the same net rate as it had in the recent past—in most cases the last two or three years—and from the same sources in their historical proportions. (Net rate refers to loan disbursements minus debt-service payments.) The most recent set of loan terms of each lending source, e.g., U.S. Agency for International Development (AID) development loans or IBRD loans, were then applied to the appropriate categories.

The resulting debt-service projections are shown in Table 4 and show marked differences among countries. The countries are grouped to preserve the confidentiality of the IBRD data. The bulk of the repayments over the ten-year period are based on service due on debt already outstanding in 1967, so that while the assumptions concerning the bulk and terms of new lending do affect the projections, the projections are not highly sensitive to these factors. Under the constant gross aid assumption, countries in Group A

Table 4: Projections of Debt Service

Country Groups	Year	Total Debt Service (\$ million)		Index of Debt Service	
		Gross Aid Constant	Net Aid Constant	Gross Aid Constant	Net Aid Constant
Group A	1967	762.4	762.4	100	100
	1972	1563.5	1658.5	205	217
	1977	2313.3	2750.1	303	360
Group B	1967	420.8	420.8	100	100
	1972	612.6	662.3	146	157
	1977	678.6	998.0	161	237
Group C	1967	1556.8	1556.8	100	100
	1972	1228.0	1550.1	79	100
	1977	1344.3	2000.1	86	128

A: India, Indonesia, Israel, Korea, Nigeria, Pakistan

B: Chile, Colombia, Dominican Republic, Iran, Peru, Tunisia

C: Argentina, Bolivia, Brazil, Mexico, Turkey

(taken all together) experience a doubling of their debt service obligations in five years and a tripling in ten years, a rate of growth of 11.1 percent per annum over the ten-year period. On the other hand, countries in Group C (in combination) would have a decline in absolute value of debt service. Under the constant net aid assumption, all three groups would experience substantial growth in debt service.

One very interesting implication of the constant gross aid projections is that by 1977 ten of the seventeen countries reach a situation in which net capital flows reverse direction; that is payments of interest and amortization exceed the value of new lending. If the projections are extended to 1984, all 17 countries reach the turning point in net flows of foreign assistance.

Debt-service ratios. In order to translate the debt-service projections into indicators of debt-servicing difficulty, we first computed the implied debt-service ratios. These ratios were based on three alternative assumptions about export growth: a continuation of the 1960-67 export growth trend for each individual country; a 4 percent rate of export growth; and an 8 percent rate of export growth. The countries are regrouped into three categories, I, II, and III on the basis of the severity of their debt problems. Table 5 shows the combined results for all countries in each group; thus the table gives only an overall picture rather than a prediction for particular countries.

Table 5: Projected Debt-Service Ratios

Country Groups	Year	Constant Gross Aid			Constant Net Aid		
		Export Growth Rate			Export Growth Rate		
		1960-67 Trend	4%	8%	1960-67 Trend	4%	8%
Group I	1967	.209	.209	.209	.209	.209	.209
	1972	.387	.355	.295	.407	.374	.310
	1977	.476	.413	.283	.551	.477	.327
Group II	1967	.283	.283	.283	.283	.283	.283
	1972	.182	.212	.176	.220	.244	.207
	1977	.167	.240	.164	.217	.301	.206
Group III	1967	.052	.052	.052	.052	.052	.052
	1972	.053	.066	.054	.062	.069	.058
	1977	.062	.083	.057	.087	.103	.071

I: India, Indonesia, Pakistan, Tunisia

II: Argentina, Brazil, Chile, Colombia, Dominican Republic, Israel, Korea, Mexico, Peru, Turkey

III: Bolivia, Iran, Nigeria

There are large differences among countries, and the results are quite sensitive to the assumed export growth rate. Group I (taken all together) would be faced by debt-service ratios rising to higher levels than those experienced by any but a few countries in the past if the export growth rate were only 4 percent or—even worse—at the 1960-67 trend; even if their exports expand at 8 percent, their debt-service ratios would still rise over the next decade. Group II starts with a higher debt-service ratio of about 28 percent, but if exports expand at 8 percent, their combined debt-service ratio would decline to 16-20 percent. On the other hand, if exports expand at only 4 percent, their combined debt-service ratio would remain high. Group III starts at a debt-service ratio about 5 percent, and though it rises it reaches at most 10 percent in the case of low export growth and constant net aid.

Projecting the discriminant functions. To further examine the likelihood of future debt-servicing difficulties, we applied discriminant functions for prediction of rescheduling, to projections of debt service/export and amortization/debt ratios to 1992. The discriminant function used was a variation on the two-variable estimate above. The revised function accounted for unequal variance of indicators between the rescheduling and non-rescheduling groups, and reduced prediction errors from 18 to only 13 out of 145 past

observations. The results of the projections were broadly similar to the projection of the debt-service ratios. Group I as a whole would be faced by serious debt-servicing problems almost continuously if the export growth were only 4 percent or continued as in 1960-67, while with exports expanding at 8 percent and gross aid constant they would still face such problems about two thirds of the time. Group II would face serious debt-servicing problems only occasionally if their exports expand at 8 percent and gross aid is constant, but if exports expand at 4 percent and net aid is constant they would face such problems yearly three fourths of the time. Group III should be essentially free of serious debt-servicing problems for the next decade or so under the various assumptions.

Assessment of Prospects

This analysis indicates that over the next decade a number of developing countries are likely to face a burden of debt service such that they will request some form of debt relief from their creditors. This assumes that roughly the same factors which operated in the past are likely to operate in the future.

There may, however, be mitigating circumstances in the future that will make the debt service burden less onerous. First, an increasing number of foreign aid recipients are serviced by consortia of aid donors who could take into account the debt service burden when setting aid levels and policies. Secondly, the buildup of debt service is relatively easy to foresee, given the availability of data, so that appropriate policies for adjusting to the increased level of debt service can be initiated well ahead of time. In many past re-scheduling exercises, debt-servicing difficulties arose suddenly and without warning as the result of excessive reliance on short-term, non-guaranteed export credits for which little data were available.

On the other side, however, there are many reasons to believe that debt-servicing difficulties will be even more severe than indicated by our projections. First, both the constant gross aid and constant net aid assumptions used in the debt-service projections may be conservative in light of past experience and in view of reasonable estimates of LDC needs for foreign capital. For example, between 1960-62 and 1965-67 gross aid from countries of the Development Assistance Committee and multilateral agencies to the LDCs grew at 4.2 percent annually and aid net of amortization and interest grew at 2.5 percent.

Secondly, the debt-service projections assume that terms of foreign lending will be roughly the same in the future as in the 1964-66 period. Several recent developments, however, will very likely cause a greater burden of debt service. United States terms on

development loans have hardened substantially since 1964, and PL 480 assistance is gradually being shifted to a hard currency repayable basis by 1971 with terms similar to development loans. There is a prospect of rapid increase in lending by countries (e.g., Germany and Japan), multilateral agencies (e.g., the World Bank, and the Inter-American Development Bank) and other institutions (e.g., the U.S. Export-Import Bank) which lend on near-commercial terms. Data which were just becoming available when this paper was written indicate that for a number of countries in Groups I and II the debt-service projections for at least 1967 and 1968 are underestimates because of the hardening of average terms. Thirdly, the data and projections for debt service exclude non-guaranteed export credits which can add significantly to the debt service burden and cause "lumpiness" in debt service payments.

On balance, the indications of serious debt-servicing difficulties implicit in the analysis probably err on the optimistic rather than the alarmist side. Furthermore, it is significant that many of the countries in Groups I and II have a debt structure including many long-term, low interest loans, notwithstanding their high level of debt service. It will be difficult for such countries to work themselves out of a high debt service situation by temporary restrictions on commercial borrowing.

This analysis suggests a very strong case for a substantial softening of the terms of foreign assistance. It also indicates that caution should be exercised with regard to expanded use of institutions which because of their use of borrowed capital must lend on near-commercial terms. Furthermore, special assistance efforts are necessary for those countries which are highly likely to have serious debt-servicing problems. These countries should either be assured of aid levels which will compensate for their high level of debt service, or of access to some established procedures for rescheduling their debt payments. Without such assurances, default on international debt will become increasingly attractive.

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Debt Servicing as an Aid to Promotion of Trade Among Developing Countries

Deena R. Khatkhate

[Developing countries are confronted by limitations on their export markets, while hard currencies are increasingly needed for debt service payments. One solution would be to link debt repayments to the promotion of additional exports from developing countries to one another.]

In discussion of the balance-of-payments difficulties of developing countries, three factors are usually considered responsible for their problems. First, the world demand for products of primary producing countries, by and large the low-income underdeveloped countries, is sluggish. Second, adverse changes in terms of trade have affected the foreign exchange earning power of the developing countries. The third factor results from the growing investment demand of countries committed to economic growth for imported capital and intermediate goods. Their payments difficulties have been further compounded by the burden of payments for amortization and interest on foreign debts. With the acceleration of aid flows to the developing economies this burden has tended to increase.

Using data for public and publicly guaranteed debts of 37 developing countries, the ratio of debt service payments to exports for the group as a whole increased from 3.44 percent in 1955 to 9.70 percent—about three times—in 1964. Added to this is the debt-servicing burden arising from private capital—both equity and loans, which flowed into developing countries at an average rate of \$200 million a year during 1951-62.

Dr. Khatkhate is an Advisor,
Central Banking Service, International
Monetary Fund, Washington, D. C.

Comprehensive data relating to debt servicing on account of private capital are available only for 49 countries for three periods; they show that the interest and dividend payments on their private foreign loans and capital as a ratio of their export earnings have risen from an average of 9.4 percent in 1951-55 to 11.6 percent in 1956-59, and to 12.5 percent in 1960-62.

Considering the magnitude of the repayment burden of both public and private debt, developing countries will have to pre-empt between one fifth and one fourth of their future export earnings for this purpose alone. This indicates how crucial it is for them to step up their exports faster than in the past and even faster than the expansion of future world trade.

Proposal

How can this expansion in the exports of developing countries at a rate faster than in the past become a practical reality? The starting point is to see that repayment liabilities become not so much a drag on the debtor countries as an instrument to increase their exports over the existing level. The developed creditor countries, instead of asking the developing debtor countries to discharge their repayment commitments through achieving an export surplus with themselves, should allow these countries to do so through additional exports to other developing countries over and above the level of exports which would take place in normal circumstances. This implies that the developing countries which receive their exports would increase their liabilities to the creditor countries to the same extent as the debt liabilities of the developing countries which export these goods are reduced. As far as the creditor countries are concerned, this proposal would mean that the repayments due to them from one developing country are re-lent almost simultaneously to another.

The mechanics of this policy may be illustrated as follows. Suppose X is a creditor-developed country and A, B are developing countries of which A is required to repay its debts to X while B has currently no repayment liabilities. The amortization and interest payments owed by A to X are, say, \$50 million. Suppose also that A currently exports goods worth \$100 million to B, and B in return exports goods worth \$50 million to A. Now, if X can be persuaded to permit A to export additional goods worth \$50 million to B against its repayment liabilities, and if B can be persuaded to assume this debt in order to pay for imports from A, the exports of A to B would go up to \$150 million. A would not receive any cash payment for the additional exports but it would be able to reduce its repayment liabilities to creditor X by that amount. In the books of the creditor X, the liabilities of A to itself are written down by \$50 million and those of B are written up by an equivalent value.

Three issues arise in regard to this scheme. First, the form of institutional arrangements to operate the scheme has to be specified. The proposal may be implemented bilaterally by the creditor and debtor countries. Alternatively, it may be put into effect through transfer of repayment liabilities of the debtor-developing countries to a regional development organization such as the African Development Bank or the Asian Development Bank. The regional development banks would be indebted to the creditor countries to the extent of the amount of repayments transferred, and the working funds of these institutions would include currencies of their member countries. When such a regional bank lends to a country in its area, it would lend the currencies of other member countries who could supply the required goods to the borrowing country.

A second issue is the need to ensure "additionality" in exports from the debtor countries which repay debt. This may seem difficult to achieve since the borrower-importer countries (i.e., country B) might use their new resources merely to pay for imports they were already getting. In that case, no additional exports of the debtor-developing countries would be promoted. Such additionality can be guaranteed, however, by tying the new loans to procurement by borrowers in one or more of the designated debtor countries.

A third issue concerns the type of goods the debtor countries desiring to liquidate their payment liabilities should or could export to other developing countries. An assumption underlying this scheme is that developing countries are at different stages of development and growing at disparate rates, and that some of the more industrialized among them should be able to export certain items of their manufactured output to those further down the scale of development against their repayment liabilities. The former countries, in fact, are also the heavy debtors. It seems that in most developing countries there has been a pronounced bias towards import substitution of consumer goods, and this tendency is if anything growing. The import demand in the less industrialized developing countries, which may be expected to follow in this direction, will be increasingly for capital and intermediate goods. There are, in fact, debtor-developing countries which have the ability to supply such goods provided necessary outlets are opened. Other types of goods would also be appropriate to the arrangement, and should not be ruled out. But the kind of export described here has special virtues for developmental growth, and it could be significantly promoted by the tied-procurement approach.

Possible Objections

Any scheme has to be approved by the creditor countries. It is no doubt true that the creditor countries would receive less on capital

and current account under this proposal. But the situation under the proposed scheme has to be compared with a situation where the debtor countries find it extremely difficult to create a required export surplus to meet their repayment liabilities. The inability of the debtor countries to discharge their debt service obligations has led to the emergence of soft loans and elongation of repayment schedules. It has also resulted in a clamor for a larger flow of gross foreign aid. This means that a cut in the flow of resources to the creditor countries is unavoidable in any case.

A second objection is that the lending country would not obtain the export outlets it gets from direct aid. But if the debtor-developing countries are permitted to liquidate their repayment liabilities against additional exports to other developing countries, they would be in a position to use a part of their normal export earnings, which would have been otherwise directed towards meeting repayment obligations, for financing additional imports. The extra demand for imports might well be directed towards goods not of the creditor countries; but this might be guarded against by providing in the agreements that a portion of the debtors' additional imports from their free foreign exchange must be used to buy goods from the creditor countries who have forgone their repayments.

The debtor-exporter countries (country A in the example above) are well served by this scheme. But there could well be objections from the borrower-importer countries (country B) who are required to spend their loan proceeds in unaccustomed areas. Of course, they will have to consider that without such a requirement the loans would not be available to them. Concessionary terms might be necessary, however, whether in pricing or lending terms, to encourage these countries to participate more fully in this type of agreement.

Benefits

The overall indebtedness of developing countries will not be reduced by this proposal, but its burdens can be redistributed away from some of the countries with the most acute current repayment problems and spread more thinly among others. In the process, the timing of repayments will be extended. This extension, and the developmental by-products of the scheme, should contribute to prospects for eventual repayment.

From the point of view of trade promotion, the scheme would aid the expansion of developing countries' trade in directions in which it has great potentiality. It appears from the trends in the last decade or so that growth in the trade of developing countries is mainly with the developed market economies and the centrally planned economies, and that the inter-developing country trade is

shrinking—either absolutely or as a proportion of the total. However, the prospects of maintaining the same rate of growth of exports by developing countries to the developed and centrally planned economies do not look bright. The share of primary exports from developing countries in world trade will tend to decline, and the prospects for manufacturing exports to the developed countries are not any better. The markets of the centrally planned economies for the products of developing countries are growing; but trade with the centrally planned economies is based on self-balancing bilateral payments arrangements, so that an expansion of trade with them would not help to achieve the necessary export surplus in convertible currency to meet the commitments involved in servicing debt to developed market economies or the international agencies. The only major alternative before the developing countries, therefore, seems to be to promote trade among themselves at a faster rate.

Under normal conditions expansion of such trade is not easy. Aside from limitations on purchasing power where incomes are low, the size of many of the developing countries is extremely small. In such a situation economies of scale arising from the size of the market are difficult to achieve, and this inhibits growth of new industries which could supply other developing countries with needed imports. It is precisely this desideratum of wider markets that would be achieved through a policy of stepping-up of exports against repayment liabilities. Pushing up exports through the extension of the size of markets may be compared to a subsidy to the nascent industries in developing countries, and might be preferable as it would obviate the risk of "overstay" of the protection to infant industries and would induce greater efficiency in management through competition in a wider world.

[Adapted from "Debt-Servicing as an Aid to Promotion of Trade of Developing Countries," Oxford Economic Papers. London: Oxford University Press, Vol. 18, No. 2, July 1966, pp. 224-235.]

Pearson Commission's Recommendations on Development Debts

[At the request of the President of the World Bank, an international commission was formed in 1968 to make a comprehensive study of aid, trade, and development problems. The commission's report makes recommendations on a wide range of subjects; those relevant to debts are included below.]

The explosive increase in public debt and debt service has been the result of several factors. Although aid did not rise fast after 1961, loans became more prominent as a proportion of aid. Their share in the bilateral official flow rose from 13 to 50 percent in the course of the last ten years. While the terms of official lending softened somewhat in the early 1960s, expansion of export credits, usually the most expensive form of foreign finance, led to a sharp reversal in the over-all average beginning in 1964. This was arrested in 1968 when there was a slight improvement in average terms, but it is too early to tell whether the 1968 experience represents a new trend.

In addition, the increasing cost of money on private capital markets has compelled the World Bank and other multilateral lending agencies to raise their interest rates on loans. The rate charged by the World Bank rose from 4.25 percent in the late 1940s to 7 percent in 1969. Rising interest rates in world money markets also raised the cost of credits extended to purchasers of machinery and equipment. Effective borrowing costs were often higher than nominal interest rates on account of over-pricing

Commission on International Development,
under the Chairmanship of the Right
Honorable Lester B. Pearson, former
Prime Minister of Canada.

practices which are difficult to assess. The rapid expansion of export credits in the 1960s, with a particularly large increase in 1968, greatly enlarged the share of lending at near-commercial terms. This was somewhat mitigated by a softening trend in the terms of export credits from five years or less in the early 1950s to somewhat longer maturities in the 1960s.

The recorded public and publicly guaranteed debt of the developing countries stood at \$47.5 billion as of June 30, 1968. The shares of the various creditors in the cumulative debt at the end of 1967 are shown in Table 1. Over 61 percent of French and 33 percent of United Kingdom official debt represented loans in Africa. Another 50 percent of the debt owed to the U. K. is attributable to loans in South Asia, where 42 percent of Germany's and 62 percent of Japan's debts also originated. Debts owed to the U. S. were mostly in Latin America (40 percent) and South Asia (30 percent). The distribution of suppliers' credits found Latin America liable for 43 percent of the total and South Asia for only 2 percent.

Table 1: Share of Creditors in Outstanding Public and Publicly Guaranteed Debt of Developing Countries
(As of January 1, 1968)

Official bilateral loans		45.9%
Of which:		
Canada	0.9%	
France	2.5	
Italy	1.6	
Japan	2.2	
United Kingdom	4.1	
United States	27.2	
West Germany	5.2	
Other	2.2	
Eastern Europe		9.1
International organizations		18.8
Suppliers' credits		13.6
Other private creditors		11.2
Miscellaneous creditors		1.5
		<u>100.0</u>

Source: World Bank

Because the terms of private lending are considerably harder than those of official flows, payments of interest and amortization

on export credits and other private loans amount to about half of the total debt service although commercial debt is only about 25 percent of the debt outstanding. [Note: This figure omits private debts not guaranteed by governments and, of course, all equity financing.] Borrowing on short term to finance long-term investments is likely to lead to trouble; but large aid loans can also create considerable debt service obligations. Grace periods which have held back debt service on concessional loans are now about to end for the loans contracted in the early 1960s when aid loans were expanding rapidly.

If new loans increase steadily at an annual rate which is higher than the rate of interest, the borrower will have a net inflow as the new funds will exceed the debt service. But if the rate of growth of new lending falls below the rate of interest, the direction of the net flow can change in a very short time. This is the situation which has arisen with regard to the developing countries, as the flow of resources to them suffered a marked loss of momentum in recent years. The net flow, after deduction of debt service, has already been sharply curtailed for certain countries.

Debt Relief

There can be no precise or statistical definition of what constitutes an "oppressive debt burden." There are no conclusive yardsticks for this purpose. It is not our view that debt relief should be provided irrespective of the policy performance of debtor governments. When developing countries find themselves in a position where they cannot meet their liabilities, this may happen because of misuse of aid funds in low-priority projects, excessive short-term borrowing on hard terms, or because of mismanagement of the economy. Where a debt crisis is patently the result of mismanagement and there is no reasonable hope for a change of policy, debt relief cannot be justified.

The picture, however, is seldom so bleak. The accumulation of excessive debt is usually the combined result of errors of borrower governments and of their foreign creditors. For example, long-term development projects are sometimes financed by short-term credits because these are often more readily available than long-term concessional loans. Failures on the part of the debtors will be obvious. The responsibility of foreign creditors is more rarely mentioned. The indiscriminate proliferation of export credits is a case in point; although these are extended by private parties, the governments of the creditor countries are heavily involved in providing insurance and refinancing facilities. The governments of the Development Assistance Committee member countries have repeatedly expressed their concern about the harmful effects of export credits, but they have failed to evolve a coherent policy which could

reconcile their trade interests with the objectives of their development assistance. We recommend that, in regard to the possible excessive use of private export credits, a strong "early warning system" based on external debt reporting should be evolved by the Organization for Economic Cooperation and Development and the World Bank.

The procedures and principles for providing debt relief have often been inadequate in our judgment. The primary objective of debt refinancing or consolidation has been to "bail out" the borrower by providing strictly short-run accommodation. It has usually also been assumed that the settlement would be definitive, once and for all; but experience has been the reverse. When relief is given, it should be provided for an adequate period to avoid a rapid succession of debt relief negotiations. We recommend that debt relief operations avoid the need for repeated reschedulings and seek to re-establish a realistic basis for development finance.

Some debt rearrangements in the past have stipulated that the debtor government agree to a stringent program of economic stabilization. Even when greater monetary and fiscal restraints are appropriate, the resulting program has often not been sufficiently dynamic. Generally these agreements have emphasized restraint on government spending and credit policies and neglected the need for developing countries to mobilize domestic resources more effectively, to generate new export earnings, and sustain sound development outlays.

Preferably, debt problems should be considered in consortia or consultative groups where the accent of the discussion is placed on developmental problems and policies. There is a close connection between debt difficulties and the need for future foreign assistance. These issues should be discussed together and in relation to one another. If a debt crisis is accompanied by a thorough study of the development needs of the country in question, which has identified valid requirements for external finance, then a ceiling on new export credits, for example, should be only one aspect of a viable arrangement. It is equally important to suggest how such credits are to be replaced by external resources on more suitable terms so that the growth momentum is sustained. Under present arrangements, this is seldom done. We recommend that, when it is necessary to set limits on new export credits, equal attention be given, where there is a sound development program, to the possible need for concessional external assistance.

When the borrower's difficulty arises from the nature of the debt structure rather than from a temporary foreign exchange shortage, a better way to assist is usually to extend new loans to refinance

debt. For example, in order to lengthen the effective maturity of the over-all debt, it may be appropriate to couple a ceiling on export credits with new long-term loans from official sources for retiring short- and medium-term obligations. Similarly, refinancing can be used to reduce the average effective interest rate payable on existing debts. The extension of credits to finance debt service payments is in present circumstances a useful aid form. We recommend that aid-giving countries consider debt relief a legitimate form of aid, and permit the use of new loans to refinance debt payments in order to reduce the need for full-scale debt relief negotiations.

Terms of Assistance

As the flow of development aid rises, it is essential that the lessons of past debt crises be used to avoid similar problems in the future. Part of the explanation for the current debt problem lies in the terms of past loans which were harder than the borrowing countries could bear. If concessional terms are not available, they will either have to forego development opportunities open to them or face even more formidable debt service problems in the future. It is true that concessional loans impose an additional burden on those countries which already provide a very large proportion of their assistance in the form of grants (e. g., France). However, reasonable uniformity in loan terms from all donors to a particular developing country is quite essential.

We recommend that the terms of official development assistance loans should henceforth provide for interest of no more than 2 percent, a maturity of between 25 and 40 years, and a grace period from 7 to 10 years. The length of the maturity and grace period may vary according to the circumstances of the borrowing country, and developing countries with very low incomes per head should receive the most favorable terms. There may be cases, such as loans to developing countries that are nearing the goal of self-sustaining growth, that would justify an exception to this terms rule. However, such exceptions should be kept to a minimum and should in no case apply to loans made under consortia arrangements.

The growing scope of World Bank operations is reflected in the steady increase in Bank lending. In 1960/61, gross disbursements were \$398 million; in 1968/69, they had risen to \$762 million. This expansion is more dramatically demonstrated by the rise in new lending, which is not yet substantially reflected in disbursements; in 1968/69 the volume of new loans was \$1.4 billion compared to \$847 million the previous year. The success of this expansion program raises the question whether these loanable resources can be provided at World Bank interest rates and used to best development advantage without accentuating the debt and balance-of-payments

problems of low-income countries. Our answer is in the affirmative, provided, the terms policy of the World Bank Group is made more flexible.

Because of the recent rise in interest rates in capital markets, the interest rates the Bank must charge on its loans have also been increasing over the last two years, and now stand at 7 percent. This may prove too high for many developing countries. It would be helpful, therefore, if ways could be found to reduce the interest rates on some part of the increase in the Bank's lending so as to make available new resources to good-performing but poor countries without further endangering their debt structures. The most sensible means of lowering these interest rates would seem to be to subsidize them, using an outside source of funds which would not reduce the income of the Bank or harm its credit standing in capital markets.

We recommend that donor countries commit the equivalent of one-half or more of the interest payments due them on official bilateral loans from developing countries to the World Bank to subsidize the interest rates on some Bank lending. In 1967, 50 percent of such receipts was \$231 million. The flexibility this arrangement would give to World Bank operations would particularly help those middle-income developing countries which have nearly exhausted their creditworthiness for Bank loans, but which do not receive any International Development Association credits because IDA does not have enough resources.

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